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Ontario

COSTIGAN (cont'd)

ROYAL COMMISSION OF INQUIRY INTO CERTAIN DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND RELATED MATTERS.

X: Olah (cont'd)

Hearing held
8th floor
180 Dundas Street West
Toronto, Ontario

Labow
Tobias

The Honourable Mr. Justice S.G.M. Grange	Commissioner
P.S.A. Lamek, Q.C.	Counsel
E.A. Cronk	Associate Counsel
Thomas Millar	Administrator

Strachan
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Re-exam

Transcript of evidence
for

October 6, 1983

Roland
Orford
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ROYAL COMMISSION OF INQUIRY INTO CERTAIN DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND RELATED MATTERS.

Hearing held on the 8th Floor, 180 Dundas Street West, Toronto, Ontario, on Thursday, the 6th day of October, 1983.

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THE HONOURABLE MR. JUSTICE S.G.M. GRANGE - Commissioner

THOMAS MILLAR - Administrator

MURRAY R. ELLIOT - Registrar

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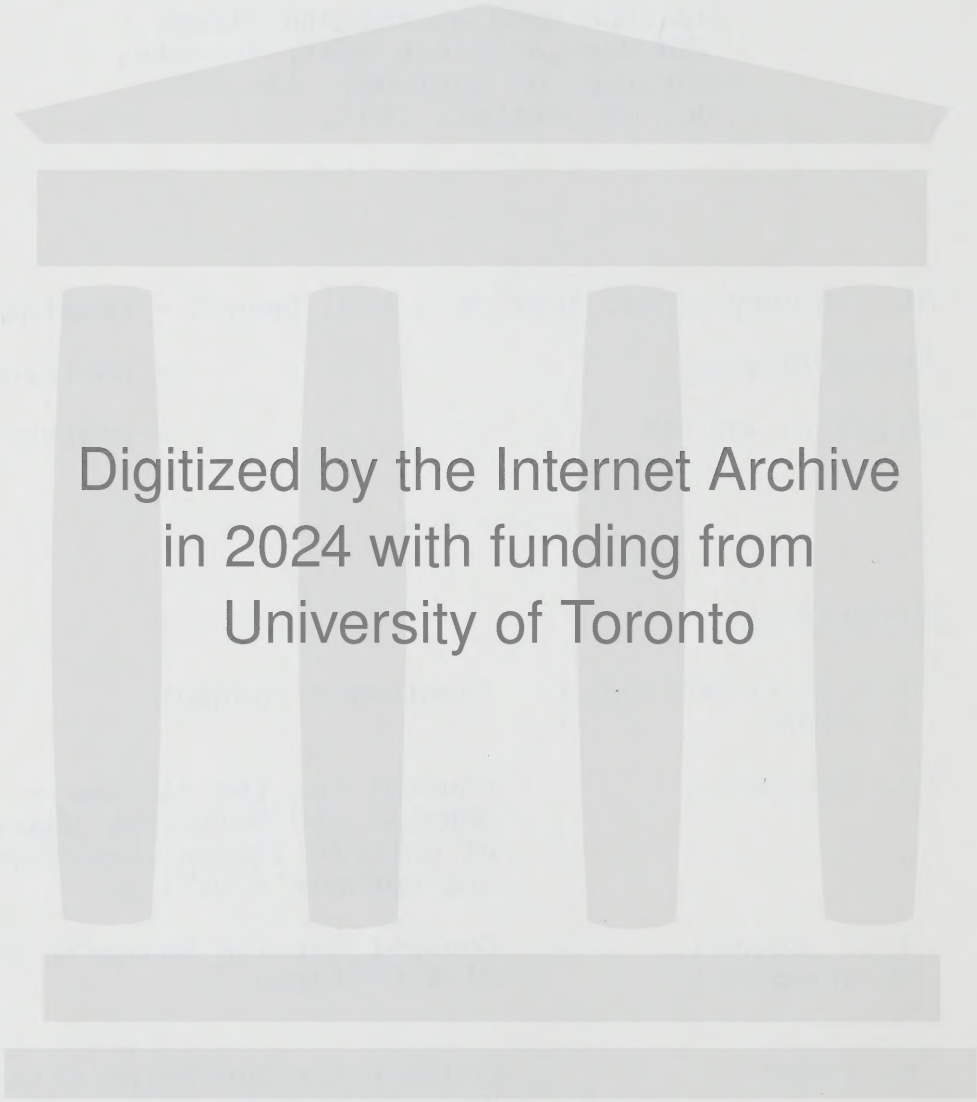
APPEARANCES:

P.S.A. LAMEK, Q.C.) E. CRONK)	Commission Counsel
L. CECCHETTO	Counsel for the Attorney-General and Solicitor General of Ontario (Crown Attorneys and Coroner's Office)
I.J. ROLAND) M. THOMSON)	Counsel for The Hosiptal for Sick Children
D. YOUNG	Counsel for The Metropolitan Toronto Police
W.N. ORTVED	Counsel for numerous Doctors at The Hospital for Sick Children
B. SYMES	Counsel for the Registered Nurses' Association of Ontario and 35 Registered Nurses at The Hospital for Sick Children

(Cont'd)



APPEARANCES: (Continued)

D. BROWN	Counsel for Susan Nelles - Nurse
E. FORSTER	Counsel for Phyllis Trayner - Nurse
J.A. OLAH	Counsel for Janet Brownless - R.N.A.
B. KNAZAN	Counsel for Mrs. M. Christie - R.N.A.
S. LABOW	Counsel for Mr. & Mrs. Gosselin, Mr. & Mrs. Gionas, Mr. & Mrs. Inwood, Mr. & Mrs. Turner, Mr. & Mrs. Lutes and Mr. & Mrs. Murphy (parents of deceased children)
F.J. SHANAHAN	Counsel for Mr. & Mrs. Dominic Lombardo (parents of deceased child Stephanie Lombardo); and Heather Dawson (mother of deceased child Amber Dawson)
W.W. TOBIAS	Counsel for Mr. & Mrs. Hines (parents of deceased child Jordan Hines)
J. SHINEHOFT	Counsel for Lorie Pacsai and Kevin Garnet (parents of deceased child Kevin Pacsai)

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A/BB/ak

---Upon commencing at 10:00 a.m.

THE COMMISSIONER: Yes, Mr. Olah.

MR. OLAH: Thank you, Mr. Commissioner.

DR. DANIEL COLM COSTIGAN, Resumed

CROSS-EXAMINATION BY MR. OLAH: (Continued)

Q. Could I have Exhibit 32B, please, Mr. Registrar?

We were talking about times of taking samples, Doctor, and I want to just clear up one final matter. If you turn to Tab 57, please. Let's start at Tab 56, that is the second clinical chemistry order I take it that was put in with respect to Kevin Pacsai on the morning of his death. I think you will find the first one, Doctor, at Tab 57.

The question I had was that in the lower right hand corner, you see the date and a time noted there.

A. You mean the 12th to the 3rd at 7 hours?

Q. 7 hours.

A. 7 hours and 7:20, yes.

Q. Is that 7:20 or 7 hours, 7 o'clock even?

A. Yes, maybe it is 7 o'clock even, it is difficult to know.

Q. Is that the time when the sample was taken? Is that what is noted in that corner?

A. I'm not sure. I think it is the time probably that the requisition was signed up all right, I'm not sure for definite.

Q. All right. Well, that would be after the sample is taken I take it, would it not?

A. I would take it, yes.

Q. So that actually the second sample was taken at 7 o'clock or shortly prior thereto?

A. Yes.

Q. Would that be the best evidence or best recollection at this time, Doctor?

A. Yes, that would be my recollection.

Q. Now, if you turn to Tab 57 you will see that the time isn't noted thereon.

A. I'm sorry, you said there was a time on that?

Q. There was no time on there.

A. No time, okay.

Q. Now, one more matter. Do I take it that from the records it is fairly clear that

the transfer to the ICU took place at about 6 o'clock in the morning? You will see Nurse Nelles' note that covers a time span on the ward until 6 o'clock in the morning.

A. I can't be very accurate as regards those times, I just can't remember them.

Q. Well, would it have been around 6 o'clock or shortly thereafter that the transfer actually would have taken place?

A. Yes, I think that was my impression it was around 6 o'clock.

MR. OLAH: May I have your indulgence for moment, please, Mr. Commissioner.

THE COMMISSIONER: Yes.

MR. OLAH: Q. Now, just dealing with an issue that was covered with you yesterday afternoon by Ms. Symes about the teams that were on duty. I take it that teams that were discussed on the evening of March 21st were the teams that were on for the Pacsai death and the Miller death?

A. I can't remember exactly, but that would be my impression that they were the teams that were discussed.

Q. All right.

A. I don't remember having any

knowledge about Estrella.

Q. All right. Well, I think your recollection was that only two deaths were discussed at that time and the impression that the same nursing team was on for both of those deaths. Wasn't that your recollection yesterday, Doctor?

A. Yes, that's my recollection that we were discussing.

MR. OLAH: Could I have Exhibit 32A, that's the first volume of very same material, please.

Q. Doctor, if I can ask you to turn to Tab 13 please of that material.

A. Yes.

Q. Do you see that the first page indicates thereon that this is the assignment book for 4A?

A. Yes.

Q. Now, if you will be good enough to turn to page 177 with me, which is almost the last page under that tab, third page from the end.

A. Yes.

Q. Do you see that, Doctor? The day shift is noted on the top two-thirds of that reproduction, pages 176 and 177.

A. I don't know how to read this. How do I know this is the day shift?

Q. Well, take it from me, Doctor, that the names, and Mr. Lamek will agree with me, that the names of the people on the night shift are on the bottom right hand corner of that page. It was your recollection was it not, that Mrs. Trayner was in fact on that evening, that is the evening of the Miller death?

A. No.

MR. LAMEK: You read the next page.

Mr. Commissioner, my recollection is that Dr. Costigan said yesterday that he couldn't speak about the Miller death, he had no information, he was comparing the teams for Pacsai and Cook.

THE COMMISSIONER: Well, I thought it was Cook and Pacsai.

MR. OLAH: Oh, well, if it was Cook then let's go to Cook which is the next page. My recollection was that it was the Miller.

THE COMMISSIONER: Well, I think it started off being Miller but I think it ended up it was a comparison between the nurses. I thought you also said that it was recognition of Susan Nelles that led to that, did you not? Was I wrong?

MR. OLAH: Let's see if we can clarify that, Doctor, if I may, Mr. Commissioner.

MR. LAMEK: Page 2 or 3 of yesterday's transcript, sir, I think the reference is to Nurses Nelles and Trayner.

MR. OLAH: Q. This reference about the same team being on occurred on the evening of Saturday, March 21st, when you were meeting with Dr. Carver during the conference about what to do with the digoxin?

A. Yes. My impression was that it was discussed.

Q. And that was prior to the Cook death, was it not, Doctor, because the Cook death occurred the following morning?

A. Yes.

Q. So, you couldn't have discussed, would you agree with me, the Cook death because it had not occurred?

A. That's correct.

Q. All right. So that logically the only deaths that could have been discussed and the team, the same team was on had to be Pacsai and Miller.

A. Yes. I wasn't aware of the

nurses that were involved with Miller because I wasn't involved with the Miller death.

Q. All right. But it was at that discussion that the reference came up?

A. Yes.

Q. That the same team had been on for two of the deaths?

A. That was my recollection, yes.

Q. And you subsequently found out that the team that was being referred to was the team that was headed by Mrs. Trayner?

A. Yes.

Q. All right. Now then, let's go back to page 177 and if you can't assist me we will leave it to someone else. But take it from me, and if you have a look at the lower right hand part of page 177 you will see that the Trayner team being listed for the night shift on the evening prior to the Miller death, which would have been the evening shift, the long shift of Friday evening, March 20th, you will see on the top left hand corner of page 176 the notation "Friday, March 20th". Do you see that, Doctor?

A. Yes, I see that.

Q. And do you see in the lower

right hand corner you've got Mrs. Trayner IC. I take it that means in charge?

A. Yes, I presume.

Q. And the room numbers being listed beside it are 418, 426 'til 23 hours only?

A. Yes.

Q. And you see that Miss Nelles is listed there and also beside her name 2300 hours only.

A. Yes.

Q. All right. Would you agree with me that would seem to be the designation of the team for the long night of March 20th which covered the time that Baby Miller arrested?

A. Yes, judging from this. I have never seen this but judging from this it looks like this team was on the evening shift.

Q. All right. Now, you will see that Miss Brownless is listed on there but Sui Scott is not a member of that team that evening. Do you see that, Doctor?

A. I don't see her name.

Q. All right. Now, if I can ask you to turn to the next tab. It is page 159, Doctor. You will see, it is the same tab back

almost 20 pages.

A. Yes.

Q. You will see that on the top left hand corner Wednesday, March 11th.

A. Yes.

Q. Which is the evening prior to the Pacsai death?

A. Yes.

Q. Pacsai died March 12th at 10:10 a.m., correct?

A. Yes.

Q. You will see the night shift again listed on the lower right hand corner.

A. Yes.

Q. Do you see that Mrs. Trayner is in charge again?

A. Yes.

Q. Nurse Nelles is on, she's on 4B in relief?

A. Yes.

Q. But you see that Nurse Brownless isn't there.

A. Yes, I don't see her name.

Q. And on this occasion you've got Mrs. Scott listed.

A. Yes.

Q. So, would you agree with me, Doctor, that the team ---

THE COMMISSIONER: Assuming that those are the correct - you see unfortunately the Doctor didn't prepare this, so, he can't agree with you on that. You have to make the assumption that those represent the ---

MR. OLAH: Well, I was going to say this, subject to proof later on by Mr. Lamek.

THE COMMISSIONER: No, no, assuming that those are correct, not with Mr. Lamek's confirmation or anything like that. All right, I know what you mean, yes, all right.

MR. OLAH: Q. All right, Doctor, assuming that ---

THE COMMISSIONER: Assuming that everything that Mr. Olah is telling you is correct and then agree with his conclusion.

MR. OLAH: Q. Assuming, Doctor, that these photocopies are indeed copies of original records and that the records reflected on what occurred on those nights, would you agree with me that the same team in fact was not on for those two deaths but that only three members of the

team were identical to the two deaths, namely, Nurse Trayner, Nurse Nelles and Nurse Christie?

A. Yes, that looks like that from what you are saying.

Q. Thank you. By the way, Doctor, you had a sitting room of some kind on the 4th floor, did you not, that you shared with your assistant chief resident?

A. Yes, the surgical chief resident had a room, a bedroom on one side and the medical chief resident had a bedroom on the other and it was a shared sitting room in between.

Q. And where was this room in relation to Wards 4A and 4B?

A. It was on the 4th floor and it was in the centre wing of the Hospital. You may know that the Hospital is shaped rather like a letter E with one block running along University and then three prongs going backwards.

Q. As a result of being so close in proximity towards 4A and 4B were you familiar with the nursing staff on those floors or on those wards?

A. Not because I was living close by.

Q. Mr. Ortved is concerned about your reputation, Doctor. That's not the kind of familiarity I was alluding to. But thank you, Mr. Ortved. Obviously you are more concerned about these things than I am.

Would you have been able to recognize the faces and attach names to the nurses on Wards 4A and 4B?

A. It wasn't the custom to go through the ward. You only went through a very small portion of the ward when you are using the stairway to go up and down or whatever and you only went into the ward for a few yards and then up the stairs or down the stairs. So, the fact that the residents were so close didn't really mean you traipsed through the ward all the time.

Q. All the time. So, I take it the answer is no?

A. No.

Q. Now, the other matter I was curious about was this inventory and conveyance of the instruction that occurred on the night of the Miller death. As I understand it, the meeting, you left the meeting at approximately 10:30 p.m., was it?

A. Yes, that's about the time.

Q. And I guess that is the reason for noting on Exhibit 205 10:30 to 12:30?

A. Yes.

Q. And your recollection is that you started at the top floor of the Hospital and you worked your way down?

A. I'm not very firm on that point but that is my recollection, yes.

Q. Well, I will tell you why, Doctor, that would suggest that you got to floor 4A and 4B obviously some time in between. What is your best recollection as to the time when you arrived on floor 4A and 4B?

A. If I started on the top on the 9th floor we would have arrived towards the end of the two hour period.

Q. I'll tell you why I'm concerned, Doctor, because you remember that you gave evidence at the preliminary inquiry in this case, or certainly in the case of the prosecution against Miss Nelles?

A. Yes.

Q. I'm sorry, Mr. Commissioner, I don't have the volume number because mine was a reprint of the original transcript.

MR. ORTVED: Volume 18.

MR. OLAH: Q. At page 36 you were asked the following questions and you gave the following answers and bearing in mind that some time has elapsed I thought this may assist you. The question at the top of page 36 at about line 7, Mr. Commissioner: .

"Q. What time did you go to Ward 4A to do that?

A. That is in reference to why I went back to 4A and B I went to every ward in the house that night. I'm not sure exactly but I think it is probably about 9 o'clock or 9:30.

Q. Who did you give that order to?

A. I don't remember the person's name or face but it was a team leader on duty at that time."

Perhaps just to assist you I should refer to the preceding couple of questions to put this in context. The bottom of page 35:

"Q. Did you have occasion to come back to Ward 4A after that?

A. Yes.

Q. What was the purpose of coming

"back?

A. I had been in consultation with Professor Carver about the problem with digoxin.

Q. Dr. Carver?

A. Dr. Carver, he is the chief of pediatrics.

Q. You can't tell us what he said but as a result of what he said what did you do?

A. We went around the Hosiptal and requested the team leaders, that is the nursing team leaders on duty, to place digoxin in a locked cupboard, in a special locked cupboard for dangerous drugs. That's why I went back to 4A and B. I went to every ward in the house that night.

Q. What time did you go to Ward 4A to do that?

A. I'm not sure exactly but I think it was probably about 9 o'clock or 9:30."

MR. ROLAND: Mr. Commissioner, just to be fair to the witness, when you read on in the

transcript on this, he didn't have with him his inventory sheet and he was asked over the lunch break to get it, at the preliminary inquiry, to get his inventory sheet made at the time and of course it has a more precise time on it.

MR. OLAH: All right, that's fair enough. I'm not here to attack the credibility of the witness, I just wanted to have his best recollection given the two documents, namely, his recollection at the preliminary inquiry, which was a very substantial time ago, and his evidence here today.

Q. Doctor, can you assist me ---

MR. ROLAND: My point is, Mr. Commissioner, is that the best recollection obviously is the time he noted the time he did it and he put that exhibit in at 10:30 and 12:30.

THE COMMISSIONER: Yes.

MR. OLAH: Well, surely, Mr. Commissioner, ---

THE COMMISSIONER: Well, now you have all of your evidence and you also have Exhibit 205 in front of you.

MR. OLAH: That is precisely why I took him to 205 and I pointed him to the note. I just want an answer and I'm trying to be fair to the

Doctor by putting to him all of the evidence and information he has got and I'm trying to get his best recollection today.

THE COMMISSIONER: Yes, all right.

MR. OLAH: Q. Doctor, can you help me in that regard?

A. Well, I think what was said just a moment ago is that I didn't have the little sheet of paper and obviously I guessed wrong about the 9:30 or whatever.

B
DP/cr

Q. Fair enough.

Now, a couple of other matters I want to clarify, Doctor, and that is this. In re-attending here you have reviewed the Pacsai chart.

A. Yes, in my notes, and things on the Pacsai chart.

Q. And you have gone through the actual chart recently, in coming here, to prepare?

A. I have not gone through it completely, no.

Q. You have seen the final autopsy report?

A. Yes.

Q. Did you ever have a chance to see the report prepared by Dr. Bain as it related to the Pacsai child?

A. No.

Q. As I understand it, turning to another point, you were the chief resident between July 1st, 1980 and July 1st, 1981 at the Hospital?

A. Yes.

Q. I take it that you received some training about the use of crash carts on Wards 4A and 4B?

A. Yes. Before we even took up the post on the 1st of July we received some extra tuition or whatever by the staff at the Intensive Care Unit about the management of arrests.

Q. Did you ever have any training on Wards 4A and 4B?

A. Training on 4A and 4B, no - as regards using the crash carts?

Q. Yes.

A. No.

Q. But in any event, at any time during your tenure there did you ever see digoxin on the crash carts on Wards 4A and 4B?

A. No.

Q. From what I understand, Doctor, these Code 25s are fairly well planned and carried out. Many people have assignments, and there is a sequence to carrying out the procedure?

A. Yes.

Q. For instance, there is a nurse designated to draw up the drugs?

A. Yes.

Q. And there is a nurse who is designated to take notes as the arrest procedure is carried out?

A. Yes, she takes down timings of things.

Q. And the drugs that are being used; and other nurses are assigned to carry out pulmonary resuscitation; so that there is a set procedure?

A. Yes.

Q. I think you said yesterday in your examination that in fact some drugs are pre-drawn?

A. Some drugs are actually prepared by the manufacturer in pre-filled syringes.

Q. Can you recall, I think you went through this with Miss Forster, was adrenaline one of the ones that was in a pre-drawn syringe?

A. The situation is that as time has gone on more drugs have become available in pre-drawn syringes and I cannot recall at that time which medications were available in pre-drawn syringes.

Q. Now of course drug error is something that you have mentioned as a possibility, and one that is always sought to avoid. Is there some procedure whereby the nurse that is drawing up the drug holds up the vial and shows it either to the doctor or the nurse who is recording it to

demonstrate that the right drug is being drawn up?

A. Yes, it is shown to the person who is going to administer the medication. It is usually the doctor.

Q. That is the doctor. Would that be you, when you are heading up the team?

A. In most instances, yes.

Q. I don't know if you can recall, but in all of the cases that you attended, was that procedure carried out, namely that the vial was held up, shown to you to be the right vial, before the injection occurred. Was that your usual procedure?

A. Oh, yes, that is my usual practice, yes.

Q. So we can be fairly clear, Doctor, I take it that drug medication error did not occur during arrests while you were in charge of those teams?

A. Yes. The drugs that I administer I always check that the drug is what is on the vial.

Q. So not only the nurse that it is drawing it up checks it but there is a double or a safety, precautionary check by the team leader?

A. That is the practice - my

practice.

Q. Now, the other thing I was curious about, Doctor, was this. Were there any reasons given when you went around the wards on the night of March 21st for the digoxin lock-up that was occurring, that is, to the nursing staff?

A. What we did was we went around and we explained that digoxin had been - in future was to be treated like a narcotic and that it was to be locked up and it was to be double signed by the nurses, and this order had come from Dr. Carver. We did not give any explanation as to why that was the case.

Q. When you go to Wards 4A and 4B did anyone ask for any explanation?

A. I cannot remember.

Q. And as I understand from your evidence yesterday, it was only the intravenous digoxin that was locked up, not the oral medication?

A. I think I may be incorrect in that yesterday. I was thinking about it and the phrase came to me, what we used to actually get the nurses to lock up the medication was that phrase that digoxin was now to be treated as a narcotic and therefore all digoxin was to be locked

up in the cupboard. I think I confused the - originally we set out to measure the quantity of oral digoxin as well, but that proved impossible because there were various amounts in various bottles.

Q. That is why it did not find its way onto your inventory?

A. That is right, yes.

THE COMMISSIONER: But you did lock it up?

THE WITNESS: Yes.

THE COMMISSIONER: You did lock up the oral digoxin?

THE WITNESS: It is very difficult to remember but I spoke to Dr. Mounstephen last night and he reminded me of the phrase we used to get the nurses to lock up the medication.

MR. OLAH: Q. And it was his recollection also that oral digoxin was to be locked up?

A. He could not be sure whether we did both or not, but he remembers the phrase that we used.

Q. Did you see oral digoxin being locked up on 4A and 4B when you were there? Do you have a recollection of that?

A. As I said earlier I do not have a recollection of the things actually being locked up in 4A and 4B.

Q. But your best recollection is that your instructions were that all digoxin was to be locked up?

A. That is right.

Q. Now, on the Hines baby, you said you still had a concern with respect to the role digoxin may have had in that baby's death. Do you recall giving that evidence yesterday?

A. Yes. I cannot remember when I got that concern, but, yes.

Q. What anatomical or clinical features were you concerned about in - or what concerns went into that opinion of yours? Was it the unusual arrhythmias that were noted in the Hines child?

A. It is difficult to judge but, yes, I think that is what prompted me that the arrhythmias, the ventricular fibrillation which I had mentioned, was unusual and it was similar in the clinical course to the Pacsai child.

Q. And in preparing for giving evidence here, did you have an opportunity to review the Hines medical records?

A. I did not get a chance to review the whole thing, no.

Q. Did you review the final autopsy report on that?

A. No, I did not.

Q. In Belanger, I take it your concern was that you could not attribute a precise cause of death in that instance?

A. That observation was not one that I made recently because it was difficult to recollect. It was just when I was reviewing some of my notes that I had. It seems that when the police at one stage showed me the records of all of the resuscitations that I was involved in and I made some comments about the charts as I went through them, so I reviewed that the night before last, and it was the only one that I had made a note saying that this was unexpected or something, I think I had said.

Q. That was on the record itself?

A. No, it was not on the record itself.

Q. That was on the "Will say" statement?

A. That is right, yes, the statement I made to the police.

Q. I take it you still hold that view today?

A. I did not get a chance to review the situation but if I made that opinion then, I am sure it was correct.

Q. So that not only - you say you could not at one time, and today you are still of the view, you could not find a precise anatomical explanation for the death?

A. That was an observation I made, having gone through the chart.

Q. Would it be fair to say that the death in that instance was unexpected?

A. In my limited opinion, it is just ---

Q. In your opinion?

A. My opinion, yes.

MR. OLAH: Thank you. Those are all the questions I have.

MR. ORTVED: Mr. Commissioner, just before Mr. Olah sits down, I just rise because I did not have the reference before me and I did not want to interrupt his cross-examination. I do not know if it is of any importance to him but at page 214 of yesterday's transcript Dr. Costigan made it

clear that the suggestion that the same nursing team that was on for the Pacsai death and Miller death was something that came from someone else. I do not know whether that is of any importance to Mr. Olah, but ---

MR. OLAH: I think the doctor made it clear, Mr. Ortved, that he did not know, that it was something that was raised during the discussion of March 21st in the evening.

MR. ORTVED: As long as that is clear.

MR.OLAH: Yes, I think that is clear on the record, and in case, Mr. Commissioner, you were interested in the references to the Belanger baby, from yesterday, they are at Volume 45, page 115 and 116 and 167.

Thank you, Doctor, I am much obliged.

THE COMMISSIONER: Mr. Labow.

CROSS-EXAMINATION BY MR. LABOW:

Q. Dr. Costigan, my name is Steven Labow and we represent the parents of a number of deceased children.

You have explained to us that as the chief resident you would select certain electives or certain things that you would do during that year?

A. Yes.

Q. Were you always subject to a

specific elective?

A. I don't understand exactly what you mean.

Q. Were there times during the year as chief resident when you were not assigned to a specific ward?

A. The situation as regards to chief resident was rather unique in that the attachment to the elective was much more free than that of the associates or whatever, and you always, if chief resident business came up, you could always excuse yourself and leave the clinic or leave wherever you were. So I was not tied to another service, if that is what you mean.

Q. You have explained that there was no period of rotation during the epidemic period on the cardiology floor. How much contact would you as chief resident have with the cardiology floor?

A. As I mentioned yesterday it was my usual practice to go around with the associate resident that was on that night, and if a couple of the other residents, junior residents were available, on a sort of a 4 o'clock round, just checking out problems, interesting patients, that sort of thing. We also did another round, a teaching round, on a

Friday, again just looking for interesting patients. These were the contacts that we had with the ward.

Q. So you would do this on a daily basis?

A. Yes.

Q. And on a weekly basis?

A. The daily basis was work only type of thing, a work round primarily, whereas the weekly one was a teaching round for junior residents.

Q. Were there associate chief residents for every division?

A. No. The associate chief residents, the number was decided by Medical Education, I guess, in the beginning of the year. In my year it was five.

Q. Was there an associate chief resident specifically assigned to the cardiology floor?

A. No. Some of the associate chief residents did rotate, as an elective, through the cardiology service.

Q. Thank you.

The only contact that I have been able to find that you had with any of the children that we represent involves Phillip Turner and Matthew

Lutes.

For Phillip Turner, which is Exhibit 44, there was a contact, I am guessing, when you were in the ICU Ward?

A. Yes. Well, we did spend as I mentioned earlier, that was part of our obligatory rotation, the ICU.

Q. I don't think you need the chart but at pages 37 and 39 of that chart, you apparently checked Phillip Turner into the ICU Ward, and there is a note from you. Do you recall any other contact that you had with that child?

A. I am sorry, I don't recall the child.

Q. If you had been on ICU when this child was checked in the Hospital, and this was the very beginning of his stay at the Hospital, would there routinely be any other contact with you specifically for this child's care and management?

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A. Not necessarily. It is very difficult. I think -- all I can say is, when you work in the Intensive Care Unit, when you admit the child, and you admit the child when you are on call during your rotation in the Intensive Care Unit, then you may not be present the next day or whatever, so the care is shared by different residents. So, unless I wrote some further notes, I probably was not subsequently involved.

Q. I would like to refer to Exhibit 69. That is Matthew Lutes' hospital record. This was one of the children for which you were around for the resuscitation efforts.

At page 53, at the bottom of that page, is your note?

A. Yes.

Q. Now, this was very early on the morning of the 17th of November. Do you know what you were doing on the cardiac ward at this time? I'm only asking this because the note seems to indicate that you "wandered in".

THE COMMISSIONER: What page?

A. I don't know how I can --

MR. LABOW: At the very beginning of that note --

C2

THE COMMISSIONER: What page is that?

MR. LABOW: The doctor's own note at page 53.

Q. It says, "Wandered in to see Matthew".

A. I mean, the situation, I cannot remember if Matthew was sick. The situation might have been that I had been told about him on the evening round at four o'clock, or whatever, and I often, before I went to bed, went back around the house to see if there was anything that was -- that was a practice I did myself. It wasn't a regular thing that we all did. It was a thing that I did personally. Maybe that is why I happened to be on the ward.

Q. Do you recall having any other prior knowledge of Matthew Lutes?

A. It is too long ago; I can't remember.

Q. Now, this note points out that you "wandered in" and, when you were examining him, his heart stopped - that is five lines down.

A. Yes.

Q. Do you know if you called

C3 the Code 25 at that time?

A. Well, yes. I didn't make a note of it, but it sounds like what I would do, of course.

Q. Your note also indicates that Drs. Schaffer and Heilbut were there from the outset.

A. Yes, I see that.

Q. Do you recall them being there for any particular reason?

A. No.

Q. You don't recall?

A. No.

Q. When this kind of thing would happen, when you were with the child and his heart stopped and you began the resuscitation efforts, would you know anything that had happened in the recent past? Would anyone tell you?

A. As I said yesterday, I think, we get our information -- the resuscitation team gets its information from the resident who is looking after the patient or, in this case, probably the Fellow who was looking after the ward that particular morning.

Q. Now, this resuscitation

C4 effort wasn't successful. Do you recall if you tried then to determine why this child died?

A. You know, I can't just -- I can't remember now what the circumstances leading to the arrest were and, from my note, I hadn't raised any concern. That is all I can say.

Q. If you were in charge of the resuscitation efforts on a child that didn't survive --

A. Yes.

Q. -- would you routinely do anything, such as review the chart and try and determine why the child died; speak to anybody?

A. What we usually do, if the history is not clear from the people who are looking after the child - this is the day-to-day circumstances - yes, of course, I would review the chart.

Q. Do you recall if you did it in this case?

A. I can't recall.

Q. My only other question is -- I am going to tell you the names of the other four children whose parents we represent and, if you recall anything regarding any of these children, stop

C5

me.

The first one is Real Gosselin.

A. No.

Q. Kristin Inwood.

A. No.

Q. Barbara Gionas.

A. No

Q. Paul Murphy.

A. No.

MR. LABOW: Thank you. I have no further questions.

THE COMMISSIONER: Thank you, Mr. Labow.

Mr. Tobias.

CROSS-EXAMINATION BY MR. TOBIAS:

Q. Good morning, Dr. Costigan. My name is Warren Tobias and I act for the family of Jordan Hines.

A. Yes.

Q. Now, if I understood your evidence correctly yesterday, prior to the terminal events with respect to Jordan Hines, you had no direct involvement with that child, did you?

A. That is my recollection. I would have to check the chart. But, you know, I am

C6

not sure whether I had any notes in the chart, but I don't recollect anything.

Q. Now, in the normal course of events when a cardiac arrest occurs and the arrest team arrives, I take it there is a great deal of immediate activity; is that correct?

A. Yes.

Q. Normally -- I won't even ask "normally", but in the case of Jordan Hines, do you recall if, prior to starting resuscitation efforts, you would have had an opportunity to make a review of his medical chart?

A. No. I would not have made a review of his medical chart before.

Q. So, I take it that, at the time the resuscitation efforts started, you were not totally aware in any particular manner of his clinical course in the Hospital and what the suggested diagnoses were and how he was being treated?

A. You said that I wasn't aware, I'm sorry?

Q. Yes. That would be my assumption. Am I correct?

A. Yes. The first thing

C7 you do is you approach and you ask what happened and you ask what the diagnosis is. You know, you get the information from the nurses or as soon as the resident arrives, but that doesn't delay your initial attempts or initial efforts.

Q. So, it is obvious that your initial concern in a case such as Jordan Hines is getting the heart started again and getting a regular beat?

A. Correct.

Q. Now,with respect to the evidence that you gave to my friend, Mr. Lamek, yesterday, you indicated that, at the time that -- or looking back on these events, rather, that the resuscitation efforts with respect to Jordan Hines stick out in your mind particularly. I think you indicated that was because of a combination of factors; am I correct?

A. Correct.

Q. Now, the first factor that you enumerated was that you were somewhat concerned or puzzled by the arrhythmias that you felt were unusual?

A. Yes.

Q. And I believe you again

C8

discussed that briefly this morning with my friend, Mr. Olah, and you particularly mentioned ventricular fibrillation?

A. Yes.

Q. I would like to get some more detail from you with respect to that point.

Can you tell me precisely what it was that you found unusual in the arrhythmias being exhibited by Jordan Hines?

A. The initial thing that was unusual was that he presented -- the first arrhythmia on arrival was ventricular fibrillation. That is a little unusual. It is unusual to see that as the first rhythm you see when you arrive to an arrest.

Q. Perhaps you can help me because, as you understand, I have very, very little knowledge in this area. Why is it unusual? What is the first thing you would expect to see, rather than ventricular fibrillation?

A. Normally, what you would see is a severe bradycardia or a fast rhythm that is beginning in some other area, a different type of rhythm, you know. It was unusual to see ventricular arrhythmia as the initial rhythm.

C9

Q. Ventricular fibrillation, as I understand it, is generally -- well, let me back up a moment. I discussed this before, I believe, with Dr. Rowe and Dr. Fowler.

A. I am sure they know more about it than me.

Q. My understanding - and please correct me if I am wrong - is that, basically, when you are talking about cardiac arrest, there are two things that can happen. One is that there is some electrical activity in the heart; there is some pumping but the pumping is insufficient to circulate the blood and the oxygen to the organs of the body. The second kind of cardiac arrest is where the heart actually stops, there is no electical activity, there is no pumping at all.

Now, as I also understand it - and please correct me if I am wrong - in the kind of arrest where there is some pumping going on but not sufficient to get oxygen to the organs of the body, the last event that you would see before death is ventricular fibrillation; that would be the last event in the sequence of events.

Am I correct in that?

A. It is my opinion that

C10 ventricular fibrillation is often seen terminally at the end of life.

Q. And what concerned you, therefore, about Jordan Hines exhibiting ventricular fibrillation was not the fact that you saw it but the fact that that was the first thing you saw rather than one of the last things you saw?

Do I understand your point now or have I --

A. No. I think -- I did not think that he had been arrested for a long period of time and that he was in final ventricular fibrillation. I felt satisfied that he had initially gone into ventricular fibrillation because you get a clinical assessment from the colour of the patient, the pupils, about what length of time the patient had actually had no pumping action.

Q. I see.

A. So, there are two different -- ventricular fibrillation not only occurs as a terminal event but can occur as an initial event.

Q. All right. So --

A. My impression was, from the clinical picture, that it was an initial event.

C11

Q. Okay. I am sorry to have interrupted you, doctor.

Again - and correct me if I am wrong - since your clinical impression was that he had just gone into cardiac arrest --

A. Yes.

Q. -- and had not been in cardiac arrest for a long period of time, you were surprised to see ventricular fibrillation at that stage. You wouldn't have been surprised to see it sometime later, though. Is that a fair summary?

A. Yes, it is much more common to see it later, especially with medication and things that are given.

Q. Was there anything other than that in the arrhythmias presented by Jordan Hines that you found unusual?

A. As I think I mentioned yesterday, he exhibited what I call ventricular irritability. It just means that there is a persistence of the rhythms beginning in the ventricle. Normally, the electrical activity begins in the collecting chambers and goes in progression down into the pumping chambers. What I mean by ventricular irritability, it means that, for some

C12

reason, the electrical system in the ventricles was initiating the electrical activity, rather than the atrium, rather than the collecting chambers.

Q. I see. And you again found that unusual?

A. Yes. That was it. Because we gave a standard form of treatment to reduce the ventricular irritability, which is lidocaine, and it had little effect.

Q. Now, doctor, I believe it has been well established in the evidence - and if it hasn't, either my friends, Mr. Roland or Mr. Ortved, will stand up and stop me very quickly. But I believe it has been clearly established that, with respect to this child's clinical course, one of the things that was seen commonly were periods of apnea followed by periods of brady/tachycardia.

At the time of the arrest, did you note this unusual - that is pejorative; I won't call it unusual because I would be putting a label on it. Did you notice any periods of brady/tachycardia; that is, a swing from slow to fast rhythm, during the arrest?

A. I would have to have the chart. I don't know whether I noted that. I can't

C13

remember now if I made a note of it.

MR. TOBIAS: Mr. Registrar, that is Exhibit 103.

Q. I believe you will find your arrest note, doctor, at page 70. It commences at page 69.

They appear to be the exact note, Mr. Ortved. There is one on 69 and another one on 56.

D/BB/ak

A. Just reading through my note, the changes from slow to fast that you referred to appear all to be in relation to the medication or external cardioversion in that it is not uncommon after you give an external cardioversion, an electrical external cardioversion that the heart will go slow and remain slow and then pick up a little bit.

Q. All right. Now, with respect to those particular episodes that you have just drawn my attention to, is there anything unusual or were you at all surprised or puzzled about that?

A. I'm sorry?

Q. In other words, what would one expect in a situation as this one where what you were presented with was a cardiac arrest where you saw ventricular fibrillation as one of the very early events. What would you expect to be the normal reaction when you administered electrical shocks to the heart to try and get it going again?

A. Yes.

Q. What kind of rhythm would you expect to induce?

A. What you do is you abolish all electrical activity and then the heart - what theoretically should happen is that the normal

D2 pacemaker in the collecting chamber takes over and so you get a normal response, a normal heart rate. Often it is slow or...

Q. That was really what I was getting at, yes. Theoretically and ideally you would hope to get a good response and restore normal heart beat. Where the response wasn't so good and where the child wasn't responding normally to it is it fair to say, and I really don't know I am asking you the question, is it fair to say that you would either get perhaps a fast beat or a slow beat or could you in fact get this rotation from a slow to a fast beat?

A. As I went through the chart, all the changes from fast to slow that you are alluding to appear to occur after the intervention, after the electrical shock therapy. It is not unusual if you give a shock the heart, momentarily all electrical activity stops then whatever source of electrical activity is dominant will come through when you hope that it will be the normal sinus that normally regulates the heart's electrical activity.

But often if there is an irritable focus in the ventricle, that focus will take over and you will get back into ventricular tachycardia or

D3

ventricular fibrillation.

Q. All right. So, I take it that you are indicating that that is not all that unusual?

A. Yes.

Q. And that didn't particularly cause you any concern or puzzlement?

A. No.

Q. Okay. Now, you were asked yesterday by Mr. Lamek whether other than the ventriculuar fibrillation you saw any other similarities between Hines and Pacsai. Do you recall that?

A. Yes.

Q. Okay. Now, you have told me this morning that in response to my query about what it was that you found unusual you have told me that (a) the exhibiting of the ventricular fibrillation very early on (b) the ventricular irritability. In responding to Mr. Lamek yesterday you indicated that you remembered thinking after seeing the Pacsai dixogin level that Hines maybe had some digoxin involvement in his arrest.

Now, I would like to go into that in a little bit more detail, Doctor. I would like to know first of all why you would make the particular connection as a result of the knowledge you had about

D4

the Pacsai readings, why that would cause you to entertain the question of possible digoxin involvement in Jordan Hines? What was it about the two cases that made you make that assumption or that connection?

A. I am really not sure what events are there in isolation or in combination or what similarities between the two made me make that connection.

Q. All right. Is it fair to say that it was just a hunch or a feeling that you got about it, or was it based on something more than that?

A. We are talking about two years ago.

Q. Yes.

A. I find it very difficult to remember what processes were going through my mind at that time.

Q. I appreciate that. Well, let me assist you if I can for a moment. It is my understanding from the evidence that both Hines and Pacsai had anatomically normal hearts. Is that your understanding as well?

A. Yes.

Q. All right. It is my understanding, and I suppose I should ask you this question

D5

first. After the terminal events with respect to Jordan Hines did you get an opportunity after that to make some review of the chart?

A. Oh, yes.

Q. All right. So that eventually you became somewhat familiar with the clinical course?

A. Oh, well, you know, as you went along there was, first, the cardiac resident and then there was the cariology fellow and even later the staff man came in. So, I mean, by the time the arrest was over we knew the story quite well I would imagine.

Q. Okay, fine. Is it fair to say, or I will ask you directly, in terms of the general course of Jordan Hines before the terminal events would you classify his condition as being stable or not stable?

A. I guess I would have to review the chart at this point in time. I didn't comment at the time in my note whether I considered it stable or unstable.

Q. All right. Well, perhaps, you have the chart in front of you, I know that there were definitely observations of apneic periods, that

D6

has been well documented. We know that there were disturbances of rhythm, the phenomenon of the bradycardia followed very quickly by tachycardia. Does that help you at all in classifying whether the condition was stable or unstable?

A. I'm sorry, I don't know when these episodes occurred. I don't know how frequent they were or how close to the terminal event, whether they were increasing or decreasing, whether they had treatment for it. I mean, there are so many parameters.

Q. All right. Well, perhaps we can move on because I'm not sure that anything turns on that question and I think in fairness to you you would need more than a few brief moments to review the chart.

A. Thank you.

Q. It is my understanding that with respect to the Hines child there was no order written for digoxin, nor was that a prescribed medication, nor is there any record of him having been administered digoxin. Do you agree with that?

A. I subsequently became aware of that.

Q. It is also my understanding in

D7

the Pacsai case that there was a hold order on the digoxin. Is that also true?

A. Yes, I discussed it with the residents and wrote it on my progress note that they should hold digoxin.

Q. All right. Now, lastly, I would like to ask you, because you have obviously given some considerable thought in the last day or so to the arrest of Jordan Hines and to the arrest of Kevin Pacsai in preparing for the evidence that you would give here, were there similarities, Doctor, in their arrest and in their course over the arrest period?

A. I'm sorry, but it is very difficult two years down the line to remember the actual course of the arrest.

Q. No, but on the basis of the reviews that you have made in preparing for this hearing and your review of the notes, do you find any similarities in the two arrests?

A. As I mentioned earlier the similarities that I mentioned were the ventricular irritability and ventricular fibrillation.

Q. Okay. So that we have discovered in the last few moments that they both

D8 had anatomical normal hearts, we have discovered that both of them were not on digoxin and that there was at least one similarity in their arrest and that was the ventricular fibrillation. Do those factors assist you at all answering my question about why you would make the connection between Hines and digoxin, having seen the digoxin levels in Pacsai?

A. Yes, I'm sure that they were factors that I considered at the time. There may have been others when I made that original observation.

Q. All right. Doesn't it really come down to this, Doctor, and please correct me if I'm wrong. You had some concern with the terminal events in Pacsai and you later found out that there was a reading of 26 nanograms per millilitre and on the basis of that reading it caused you to have concern regarding the role of digoxin with respect to the Kevin Pacsai death. Doesn't it really come down to the fact that in light of that and given some of the similarities that you saw in Hines you had to entertain the possibility, you had to ask the question in your mind of whether there could be any connection in the Hines case with digoxin toxicity. Is that a fair summary really of what you were expressing yesterday?

D9

A. Yes, I did ask myself that question but I'm not sure when I asked that question.

Q. All right. But are you sure that you didn't ask yourself that question until you knew of the Pacsai levels?

A. Yes. My impression is yes.

Q. Okay, fine.

Now, you indicated yesterday that one of the things that you considered with respect to Jordan Hines was some type of sinus rhythm disturbance, some abnormality in the conduction system?

A. Yes, yes.

Q. All right. Now, I wonder if you might help me in this area. Let us assume that we have a child and we know there is a conduction problem, all right, and I know that that is a very hard diagnosis to make, but just for the sake of argument if you will let's make that assumption. If that child goes into a cardiac arrest would you expect him to be a particularly good candidate for resuscitation?

A. I am sorry, really, I don't know enough about that particular entity of the sick sinus syndrome to know whether they are good

D10

risks for resuscitation or bad risks for resuscitation.

Q. All right. So, you are not really able to help me in comparing what success you might have with respect to someone who went into congestive heart failure as opposed to a rhythm disturbance?

A. It would be pure speculation, really, I am not a cardiologist.

Q. All right, fine. Now, you also indicated to us yesterday that there was some awareness on your part at some later time that digoxin had been found in the exhumed tissue of Jordan Hines. Do you recall that evidence?

A. Yes, yes.

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BB/cr

Q. All right. I believe you said that you weren't aware of the levels but you were aware that some was found?

A. Yes.

Q. I believe your evidence was, and I am quoting:

"This reinforced my impression that maybe digoxin was involved".

Is that correct?

A. Yes.

Q. Okay. Now, were you aware or are you aware today, and there is a distinction, Doctor, I assure you, are you aware that in fact there were quantities of digoxin found in the preserved heart tissue of Jordan Hines?

A. I wasn't aware of that.

Q. All right. Well, it is my understanding, and correct me again if I am wrong if it is not your understanding, that at autopsy sections of the heart were preserved in Klotz solution and that they were later assayed and that digoxin was found in the heart tissue. Does that surprise you at all?

A. I mean, I don't know anything about the assaying of digoxin in the heart. I mean,

I did realize that because of our concern about the conducting tissues that the heart would be preserved for sectioning.

Q. All right. My question is this directly and if you can't answer it I understand completely. You say that the fact that there was digoxin found in exhumed tissue reinforced your concern about digoxin. Does the fact that it was found in preserved tissue as opposed to exhumed tissue in any way reinforce it in a greater or more positive manner?

A. No, it just acts in the same fashion I guess.

Q. Okay. And I take it that that is partly because you really don't have much knowledge as to the difference in doing an assay between doing it on an exhumed tissue or preserved tissue?

A. Exactly.

Q. All right, fine. Now, given the fact that you do have concern in the Jordan Hines case with respect to the involvement of digoxin and given the fact that that concern has been somewhat reinforced by the finding that there was digoxin in his tissues, I would ask you this question:

If you knew for a fact that a baby had been given a massive overdose of digoxin sufficient in quantity to produce fataly toxic reaction, would that help you account for the presence of unusual arrhythmias in that child at arrest. Would that help account (a) for the early indication of ventricular fibrillation, would it account for ventricular irritability in your view?

A. I think really you had better get a cardiology opinion on that because I am not - I know that digoxin toxicity is associated with many different types of arrhythmias.

Q. All right.

A. As to know whether the types of arrhythmias that I observed were more representative of digoxin toxicity than they might be of something else, I would rather not say because I am not qualified.

Q. All right, fine. Now, I also understand from looking at the medical record of Jordan Hines that there were periods when the baby was very congested and required suctioning of the nasal passages. In your experience can periods of severe congestion like that, can they be a cause or a triggering event or an apneic incident?

THE COMMISSIONER: I am having some trouble with that?

MR. TOBIAS: Q. Can the presence of severe congestion in a baby of under one month of age, can that be a cause or a triggering even for apnea?

A. The situation as far as I know it is that babies of that age do most of their breathing through the nasal passages and some congestion of the nasal passages makes it a little more difficult for them to breathe. But of itself it should not cause apnea.

Q. All right. Can it contribute though, can it help produce it because they breathe through their nasal passages?

A. No, all babies breathe through their nasal passages at this time.

Q. All right. Well, what I am really after is this. Does the congestion interfere with their breathing sufficiently to produce an apneic period?

A. Again, we are getting into an area of expertise as regards apnea and mechanical blocking of ventilation. I think you had probably better ask a person who was qualified.

Q. Okay. Now, you also indicated to us yesterday that prior to the terminal events with respect to Jordan Hines you had some discussion with Mr. and Mrs. Hines regarding permission for a post mortem. Do you recall giving that evidence?

A. Yes.

Q. All right. Now, I believe you said yesterday that you did express some concern with respect to what had happened and you indicated to them that you did have certain questions that you wanted to investigate and that is why you were asking for the post mortem consent. Do you recall in any way the specifics of the conversations that you had with them on March 8th?

A. I may have said this yesterday but to the best of my recollection it was that I reviewed, tried to explain a little bit about the conducting system and the diagnosis, that there was a prior abnormality in the baby's conducting tissue, that the actual arrest was unusual and that we would like to be in a position to examine the conducting tissue.

3D/BB/ak

Q. All right. Now, do you recall that originally the Hines were not willing to give their consent to a post mortem?

A. Yes, I believe they refused when I think it was the resident or the doctor who normally looks after the patient asked, I don't remember who actually asked them.

Q. All right. I take it that ultimately since they did give that request or they did accede to that request that in fact your discussion with them obviously must have changed their minds, so, you must have had to do some persuading, isn't that correct?

A. Well, I think explanation more than persuasion.

Q. Okay, rather than persuading them.

A. Yes.

Q. All right. Now, it is my understanding that at some point you indicated to the Hines that you didn't know what had happened and that you, being the Hospital, felt very guilty about what had happened. Do you recall making any comment like that to Mr. Hines on the morning of March 8th?

3D2

A. About being guilty?

Q. Yes, about feeling guilty about it?

A. No, I don't remember.

Q. All right. Do you also recall during that discussion, it is my understanding that in explaining the background of the matter you made a comment to Mr. and Mrs. Hines that there were times in a hospital where there seemed to be bouts of deaths or deaths which occurred more frequently than at other times and that this was one of your concerns with respect to this particular case and why you wanted to investigate it. Do you recall making any statement to Mr. & Mrs. Hines on the morning of March 8th to that effect?

A. No, no.

Q. All right. I might ask you this. At that time as best as you can recall did you have any particular concern about the number of deaths occurring on Wards 4A and 4B?

A. No.

Q. All right. I take it that since you didn't have any concern it is obviously something that back then at that time you had not as yet directed your mind to, correct?

3D3

A. I'm sorry, I don't understand what that question was.

Q. All right. You said you didn't have any concern about it. All I'm saying then is what you are really saying is, I hadn't really thought about it, about the increased frequency of deaths.

A. Yes. My understanding was that I'm not quite sure when I first began to realize that there was more, you know, an increased frequency or whatever.

Q. All right. So, I take it from that obviously since you hadn't even thought of it you certainly couldn't have mentioned it to Mr. and Mrs. Hines. Now, with respect to your specific discussion of what it was vou wanted to investigate, I believe you have already told us, that you did explain to Mr. and Mrs. Hines that you wanted to look into the electrical conductive tissue of Jordan Hines' heart and that was something that was in your mind from a very early stage, is that correct?

A. Yes.

Q. All right. Was that communicated by you to any of the other cardiologists

3D4

present?

A. Yes. My recollection was that we discussed the episode, I discussed the episode about the consent and original refusal and then obtaining the permission and what had went on with Dr. Vera Rose the staff cardiologist who was present towards the end of the arrest.

Q. All right. Now, it is also my understanding that Dr. Vera Rose felt very strongly that this arrest may have been the result of a viral infection affecting the heart muscle. Do you agree with that?

A. That rings a bell, yes.

Q. All right. And do you recall discussing that with her?

A. I am sorry, I certainly, when you mentioned the viral infection involving the heart it rung a bell but I can't remember a discussion about it.

Q. Now, it is my understanding, Doctor, that when a postmortem examination is done the resident pathologist who is actually doing the autopsy reads the medical chart. Does he also receive any specific requests or information from the treating doctor as to what to look for, or do you know?

A. I don't know for definite.

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DP/cr

Q. Did you do anything that you can recall, to specifically bring to the attention of the pathologistsyour curiosity about the electrical conductive system?

A. I cannot remember. I remember checking with the Pathology Department a few days later to know had they done the sectioning of the conducting tissue and at that time they said they had not. I checked again a while later. In fact, Mr. Hines phoned me, I think, on one occasion or two occasions and the next thing that happened was that the subsequent digoxin story intervened before I got any results from the Pathology Department.

Q. I understand. At the time the terminal events took place, were you aware of what was involved in making the study of the conduction system, in other words, the exact methodology?

A. No.

Q. Are you today aware of what is involved?

A. No. I could imagine that maybe it was a lot of sectioning, it is a lot of work, but I don't know.

Q. Did you know that at the time, that it was a lot of work?

A. I think I discovered that when I rang the Pathology Department a few days later, expecting a result, and they said this takes a lot of time or something.

Q. So that at the time that you decided in your own mind that this was something that you would like done and a query you would like answered, you did not really understand the full breadth of that undertaking?

A. Yes.

Q. And it was only later that you were informed of that?

A. Yes.

Q. Fine. Did you know at the time that you decided you wanted the study done whether there was anyone at the Hospital for Sick Children who was capable of doing that kind of sectioning?

A. I did not realize it was so difficult and I presumed there was somebody who could do it, but I did not check or could not check at that time.

Q. You mentioned, Doctor, that you did speak to Mr. Hines again a few days later. Do you recall perhaps speaking to Mr. Hines on or

about March 10, 1981; the death having occurred on March the 8th?

A. I am sorry, I cannot remember the dates.

Q. You cannot remember the dates, but you do recall at least one conversation some time after the death?

A. One telephone conversation, yes.

Q. Doctor, was that conversation, did it take place before or after you had made your enquiries of the Pathology Department?

A. I am sorry, I cannot remember.

Q. Fair enough. With respect to the enquiries that you did make of the Pathology Department, those were enquiries made in person, by telephone, how?

A. I think they were made by telephone.

Q. They were made verbally, I take it, rather than in writing?

A. Yes.

Q. Do you recall now who it was that you spoke to in the Pathology Department?

A. No, the usual course of events

was that I would ring up and I would ask the secretary which pathologist was dealing with a particular case and then I would ask to be put through to either that staff pathologist or his resident, but I can't remember who.

Q. Are you aware of the fact today that the staff pathologist in charge of the Hines autopsy was Dr. Laurence Becker?

A. I was not aware of that until now. I guess, if you say so ---

Q. Were you aware prior to today that the resident pathologist who actually performed the autopsy was Dr. Sugar?

A. The name doesn't mean anything. I know Dr. Becker's name but ---

Q. Do you have any independent recollection whatsoever of speaking to either doctors Becker or Sugar after the preliminary autospy was done?

A. As I mentioned previously, I spoke to one of the persons involved in the autopsy who gave me the information that it was going to take a long time, that it wasn't available.

Q. So you spoke to that person, but you don't remember the name?

A. That is right.

Q. With respect to this conversation that you had with Mr. Hines some time following the terminal events, it is my understanding that you indicated to Mr. Hines that the autopsy report was inconclusive and established no reason for death. Do you recall if you indicated that to Mr. Hines when you spoke to him?

A. I don't remember saying that.

Q. Do you recall indicating to him that you were now aware that the study of the electro conductive system of the heart was a very involved process, taking six hundred slides of tissue, and it would take some time to do that. Do you recall that part of it?

A. Yes, I do, yes.

Q. So that you agree with me, since you remember that part of the conversation, that at the very least you would have told Mr. Hines that there were further studies that had to be done in order to come to a positive conclusion?

A. The part I remember, and to be fair that is the only part that I can actually remember is the part about the conducting tissue and my underestimation of the magnitude of the work that

was involved.

Q. What I am saying to you, Doctor, is this. You have been fair and you have told me that you have no independent recollection of stating to him that the report was inconclusive and established no reason for death, and I accept that. But you do recall speaking to him and telling him that there was further testing that you still wanted done.

Does that infer to you that at that time there were still further questions that had to be answered and therefore you could not have had what you considered an acceptable cause of death?

A. I think the way to look at it is I had originally obtained the consent with the express purpose of looking at the conduction tissue. Mistakenly I had sort of given him the impression that would not take very long and now he rang me back and I was not in a position to give him that information for quite a while, it seemed.

Q. After that discussion, was there any further discussion that you had with Mr. Hines?

A. Yes, I think there was one other phone call. I am not sure of the days, but I

was aware of the concern about digoxin, I think, at the time.

Q. Did you say anything to Mr. Hines regarding that concern?

A. I think it was actually in the paper at this time. It had hit the press and he rang up, concerned - it is my recollection that he rang up concerned, could his baby be involved or could digoxin be involved in his child's death. Unfortunately I had to refer him to the Cardiology Department.

Q. Yes. Are you clear in your recollection that it was Hines and not yourself who raised the question of digoxin?

A. Yes, that was my recollection.

Q. You say you had to refer him to Cardiology, so I take it you were not able to give him any particular information yourself?

A. My recollection was that there was a decision at the time that all the questions from parents would be directed to the Cardiology Department, who were sort of answering hundreds of queries, I guess.

Q. I understand. Was that decision made, sir, as a result of the intervening

police investigation?

A. Yes, it was my impression it was made around that time, yes.

Q. Do you recall telling Mr. Hines that because it was now a police matter he really could not discuss it with you and you would have to refer him to Cardiology?

A. I don't remember that particular phrase, I am afraid. I don't know how I referred him, but I know I did.

MR. TOBIAS: Thank you, Dr. Costigan. Those are all my questions.

THE COMMISSIONER: Thank you, Mr. Tobias. Mr. Shanahan.

CROSS-EXAMINATION BY MR. SHANAHAN:

Q. Dr. Costigan, my name is Shanahan and I act on behalf of the families of the Lombardo and Dawson children.

I do not think you dealt with those children at all, sir, so I won't really be very long with you, but I thought that some of the things that you mentioned in your evidence as to how you perhaps got to the bottom of a lot of these events in March might be of interest to us and to the Commissioner later in arriving at an assessment of their death.

I know you have been through the events there at the time, but some of the overview here I wanted to clear up. First of all, you described your position as you were what, chief resident?

A. That was the title, yes.

Q. In that capacity, as I understood it here, you really had no individual dealings with any of the children over the whole time period other than at times you may be called in specifically for a problem by a nurse at a given time, or you may be managing the Arrest Team when a Code 25 was called.

A. My involvement with any of the children might have been if I met them during my time in the Intensive Care Unit. A lot of them were also in the Intensive Care Unit. It might have been on my rounds at 4 o'clock, as I mentioned previously, if some of the residents had a concern or whatever we would have a look at the child or, as you mentioned, if the nurses ---

Q. Called you specifically?

A. Yes, or then of course if there was an arrest.

Q. You were not seized with the care of any one individual child, you sort of had an

overview there. You were there as a last resort. You could be called upon if needed, and you certainly were there to see them at various times. Is that right?

A. That is correct.

Q. In terms of prescribing that kind of testing that would be done for them, the electrocardiographs and all this kind of thing, and then the kind of operations that would be undertaken or the drugs prescribed, you had nothing really to do with that at all?

A. No, that was Cardiology.

Q. And then you come along and Pacsai, initially I think you said a nurse had asked you to look at Pacsai. Was that the very day that the Pacsai events that we have heard about take place or is that on an earlier occasion that you deal with Pacsai?

A. I can't remember about an earlier occasion but, as I mentioned yesterday, myself and a Cardiology Fellow were coming back from another arrest that morning and we were asked, by I think it was a nurse, to come and have a look at Baby Pacsai because there was a concern.

Q. Does that lead in then to the

situation you described, that leads up to taking him to ICU and subsequently to his death, or are you talking about an event a few weeks before?

A. No, I am talking about that morning. There was a gap interval of maybe another hour or something while I was in Intensive Care. I was subsequently called back.

Q. So in any event you get involved in Pacsai and to jump ahead, sir, would it be fair to say that what really gets you, you do remark on the various heart arrhythmias and heart patterns, you do remark on the concern that takes him down to ICU, but it seems to me that the reason you went for tests and specifically for the digoxin testing was in fact the elevated potassium levels. Is that what really got you to get blood samples from Pacsai. Was I right there?

A. That is what really made me get the digoxin samples?

Q. And then to use those blood samples to also check for digoxin, not just electrolytes and other things, but then to go for digoxin?

A. No. I was not aware at that time that very severe digoxin poisoning was associated

with high potassium levels.

Q. That is what I am saying. You were really at that time just presented with a high potassium reading, amongst other things, and as I understood it it was the high potassium that you thought might interplay with digoxin and maybe I had better get a digoxin reading?

A. No, I am sorry, you seem to have missed out a bit on what I said.

Q. That is what I want to clarify.

A. The situation as I had originally made the impression that it could be a sinus abnormality or a dig. toxicity, then I was presented with this unexpected finding of very high potassium, which retreated. We thought that was the cause of the arrest. Subsequently during that day after the arrest I said, well, what was the dig. level, and I went back and looked for it and found out.

Q. That is what I want to lead up to. It is then subsequent to the death that you go back and find out what in fact the reading was on Pacsai?

A. Correct.

Q. Did you actually have to take yourself down to Pathology to find that out?

A. No, Pathology was not involved, it was the Hematology Department.

Q. Straight hematology, all right. When you find that out, as I understand it here, first of all you have not been dealing with any of the nurses over the intervening months and in any way receiving any sort of complaint or concern as to the general rate of child deaths on that ward over the intervening six, seven, eight, nine months?

A. The only awareness I had of the deaths was I received the minutes of a meeting that you may have heard about earlier in January. That was the official communication I had about that.

Q. That was the next question I was going to ask you. Not only then had you not dealt with the nurses, you had not been invited to or involved in any of the either daily morbidity meetings, or you had not been involved in the special meetings that had been called to allay the nurses' concerns?

A. Correct.

Q. So you were approaching Pacsai at least with a fresh face here and you had got the Pacsai reading and you did not at that time have the Estrella reading and had not dealt with the

Estrella baby?

A. Correct.

Q. I believe the evidence was that it was a week later that you got the Estrella reading. Is that correct, Saturday, the 21st of March?

A. Yes.

Q. Approximately a week in any event.

You come along then and you deal with the Miller child. With respect to Miller here, was it your idea to get the dig. readings on Miller?

A. I think I was one of the people who requested a dig. level on Baby Miller.

Q. It seemed to me, too, that you were reasonably insistent. You wanted it expedited and you in fact went down to Hematology to have it done and given to you personally. Isn't that right?

A. No, I am sorry, you are mixing things up a little bit. What I did was I needed further authorization, I needed to discuss it with Professor Carver, really, so I went to him and he expedited it, really, the measurement.

Q. I have it here that you went to Carver to have Miller tested and it was actually Carver who had it expedited too.

A. Yes, he is the authority.

Q. Why did you have to go to - or did you have to go to Dr. Carver to have Miller tested?

MR. LAMEK: That is not the evidence. The sample was drawn, sent to Biochemistry and his visit to Carver was solely for the purpose of getting the assay done quickly rather than waiting until Monday. It was not approval for the testing.

THE WITNESS: Yes, it was to get it done - sorry, to get it done on the Saturday.

Q. To get it expedited, was what you had Carver involved for?

A. Yes.

Q. All right.

Now, then, finally, here, with respect to the Hines child here, did you see it as unusual that you would approach, since you are not in charge of dealing with Hines and actually treating Hines, did you see it as unusual that you would go out and have a role - I don't think you like the word persuaded - but at least have a role in dealing with the parents as to having an autopsy so that you could get to the bottom of what might have caused their child's death.

Would that not, it struck me, have perhaps been left to the doctor that had been treating this child on a day-to-day basis?

A. The doctor who had been treating the child on a day-to-day basis had been refused permission and as I was more senior and I was the person in charge of the resuscitation I felt I would go and talk to the parents.

Q. It was purely a situation of where you felt you were more senior and you went out there and took the bull by the horns.

Were you aware, sir, that at that time - what was your understanding at that time about Hines' heart. I know you have given evidence here that you felt that the Hines and the Pacsai hearts were anatomically normal, but at that point in time were you aware or was it after the autopsy that you became aware that Hines' heart was anatomically normal?

A. I cannot remember now when I became aware, but my impression was that I would have been made aware of all the relevant facts at the time as they were known because, as I said earlier, the Cardiology Resident, the Cardiology Fellow and subsequently the staff persons present, do you

understand?

Q. Yes, all right. So all of that information would really have settled at one and the same time on you?

A. I would imagine.

MR. SHANAHAN: All right, thank you, sir.

THE COMMISSIONER: We will take 20 minutes.

---Short recess.

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--- on resuming.

THE COMMISSIONER: Yes, Mr. Shinehoft.

MR. SHINEHOFT: Thank you, Mr. Commissioner.

CROSS-EXAMINATION BY MR. SHINEHOFT:

Q. Dr. Costigan, my name is Jack Shinehoft and I represent the parents of Kevin Pacsai and, in that context, I would like to ask you a few questions.

I would like before that, though, sir, to ask you about your work experience from July of 1978 to July of 1979.

A. Yes. That was called -- that was in the National Maternity Hospital in Dublin, Ireland. It was a job that was called Senior House Officer in Perinatology.

Q. Now, what exactly is that, doctor?

A. Perinatology is the study really of infants both before and after birth. It involves a combination of obstetric care with the concentration on the baby, with care of the infant before birth and during the delivery and after birth.

Q. And would that be the after-birth aspect of that training, would that be directly related to neonates?

A. That is correct.

Q. And that would be to about one month of age?

A. That is correct, yes. Often, if they have problems, of course, you would look after them longer.

Q. And would the baby, the Pacsai baby, be characterized as a neonate? I understand he was twenty-three days old at the time of his arrival at The Hospital for Sick Children.

A. My recollection is the definition of a neonate is the first month, up to the first month of life.

Q. I understand, doctor -- perhaps, Mr. Registrar, you could give the doctor Exhibit 106, or do you have it before you?

A. I have it, yes.

Q. I understand that your involvement in terms of the charting for this baby consists of three entries, basically pages 63, 66 and 67; is that correct, doctor?

F3

A. Well, do you want me to review the chart?

Q. Well, I am going to ask you to review the chart, yes. I am going to say that I have looked at the chart and I have found, other than the orders that you have made on page 77, that there are three entries in your own hand-writing, those on pages 63, 66 and 67.

Would you agree with me?

A. Yes. I see my writing on those three pages.

Q. What I would like, doctor, for my own edification really, because I can't read a lot of your writing, is to review the notes that you did make and to ask you the thought processes that you had when you were making those notes.

A. It is going to be very difficult to remember thought processes.

Q. Well, let's try, if we may.

I understand, on the 12th, which is the first involvement you have with this baby, was when you and another resident were coming back from an arrest - and that was about four o'clock in the morning; is that correct, doctor?

F4

A. Yes.

Q. And that you were asked to go and see the baby because the baby was in some difficulty.

A. We were asked, you know, as a general request. My recollection is the nurse came up and said "Baby Pacsai is having some difficulty", and, of course, we all went in to see.

Q. You went in and you looked at the baby only for, as I understand it, a short period of time.

A. Yes, with the Cardiology Fellow and the Cardiology Resident who knew the baby. So, I said, I had been away from the Intensive Care Unit for a while and I had patients down there; so I went back down.

Q. From my examination of the notes and the record, you didn't make any note of your involvement with the baby at the time.

A. Correct.

Q. Did you ever make any notes about your four o'clock visit?

A. No. It was minimal. I really just sort of looked at the baby and then allowed the other people to proceed with the examination.

F5

Q. And then the next time you were involved is at approximately 5:30, and that is when you were called back again; is that correct, doctor?

A. Correct.

Q. And would you please turn to page 63.

A. Yes.

Q. Do you have it before you?

A. Yes.

Q. Now, you will note in the left-hand side, about a third of the way down, you have written "0530 HRS".

A. Yes.

Q. That would be the time you made the note or after you did the treatment, would you have made the note?

A. My practice usually is to write the note, of course, after I have assessed the situation. But, usually, I put the time down that I assess the situation.

Q. Now, if you look, doctor, above the note, there is some writing. Is that your writing?

A. Yes. It looks like my

F6

writing, yes.

Q. And is there a reason why that writing would precede or come before the time that you have indicated the note is made?

A. I cannot remember the circumstances regarding that first line.

Q. What does that first line say?

A. What it says is, it gives the results of some blood gases, or blood tests done on the baby. It has measured the amount of oxygen and carbon dioxide and various things in the blood.

Q. The first thing is the pH level; is that correct?

A. That is correct, yes.

Q. And that is given as 7.47.

A. Correct.

Q. And would you say -- would you characterize that as normal?

A. Yes.

Q. And the second number is what?

A. "31 PCO_2".

F7

Q. That is carbon --

A. Carbon dioxide.

Q. Carbon dioxide. And would you consider that normal as well?

A. Yes.

Q. And what about the third symbol?

A. "Bicarbonate 22", and that is normal limits.

Q. And "BE-1", I believe is the next entry?

A. Yes. Base Excess. It is similar to the pH. It is another indicator of the degree of acid versus base in the child's blood.

Q. Is that within the normal limit?

A. Yes.

Q. And the next entry, doctor?

A. Is "PO_2", partial pressure of oxygen - "P" stands for partial pressure of oxygen.

Q. Yes.

A. And that is "160".

F8

Q. And what is the significance of that, doctor?

A. 160 millimeters of mercury, it is a little bit above the normal range and the child was obviously on some oxygen because the next word is "FIO_2", which is a fraction of inspired oxygen.

Q. And there is an arrow and it has ".40"; is that correct, doctor?

A. Before that, it looks like ".70", first, I think, and then an arrow.

Q. So, is that the range, from .7 to .4?

A. No. I think, looking at this now, my interpretation is that the child had a PO_2 of 160 --

Q. Yes.

A. -- and an FIO_2 in a concentration of 7 per cent oxygen. Then the arrow points that it was changed as a result of this PO_2 of 160 down to --

Q. So, the baby was somewhat overoxygenated; is that correct?

A. Mildly so, yes.

Q. And then you write:

F9

"Asked to see Kevin because of anxiety re episodes of bradycardia; down to 50-60."

What does the following sentence, following the words, doctor?

A. "alternating with rates of 150."

Q. That would be an extreme differential between the low and the high; is that correct?

A. Yes.

Q. Would that be the classical brady/tachy thing that my friend was referring to before?

A. Well, I can't remember what your friend was referring to. Yes, it does mean there was an alteration between slow and fast.

Q. 150 would be --

A. It is more normal than fast, really; it is not very fast.

Q. Would you please read for me the next sentence, "No..." something.

A. "No blood pressure drop, BP, noted during these episodes."

F10

Q. So, his blood pressure remained the same?

A. Yes. What I seem to be saying there is, when his heart rate dropped to 50 or 60, it didn't interfere with its pumping action; we were still able to keep the blood pressure --

Q. Would that be unusual to have this happening?

A. No, it would be more serious if his blood pressure had dropped. Again, it is an indicator of less severe episode of bradycardia.

Q. Thank you.

You go on further to say...?

A. "Rhythm strip", that just means the piece of paper that comes from the --

Q. Right.

A. The arrow, I guess that means what it showed. I had it "varying" written there and it is crossed out as far as I can see, and I had, "Slight prolonged PR". We mentioned the PR interval yesterday. It is the length of time it takes for the conduction to get from the collecting to the pumping chambers.

Q. Yes, right.

F11

A. "Sinus bradycardia". That just means that the slow -- when the heart rate was slow, there was still evidence that the electrical activity was originating in the collecting chambers in the atrium.

Q. Are there other kinds of bradycardia, other than sinus bradycardia, doctor?

A. Yes.

Q. And that is why you made a specific reference to the "sinus bradycardia"?

A. Yes.

Q. And that would show the site at which the bradycardia commenced?

A. It means that, when the heart rate was slow, the configuration of the electrical activity was normal.

Q. Yes.

A. Like, some people - it is difficult to explain - athletes, very well-trained athletes, can have sinus bradycardia. By strict definition, they have heart rates of 40 or 50 but their complexes are completely normal.

Q. They do that through physical fitness?

A. Yes.

F12

Q. Then you go on -- you have a question mark, "? sinus or nodal tachycardia".

A. Nodal tachycardia.

Q. And what were you meaning by that, doctor?

A. The episodes of the tachycardia, fast episodes of 150, which is a bit above the normal range. I wasn't sure whether they were originating in the sinus, which is the normal place that this type of activity originates, or in the node, which is a thing called the atrial ventricular node, which is -- what happens is, if the electrical activity in the sinus node goes through the collecting chambers and then to the atrial ventricular node then down to the ventricles.

Q. Right. So, you were not sure where the problem was?

A. Which part -- whereabouts in the atrium, the collecting chambers, it was electrical activity was beginning.

Q. And then you state, "Intermittent 2 to 1 block", and I think you have discussed that before.

A. That just means that there was occasionally evidence of elctrical activity in the

F 13

collecting chambers that was not conducted down to the ventricles.

Q. So, one would be pumping twice as fast as the other; is that correct?

A. Intermittently.

Q. And then you go on to say, "D" - I assume is diagnosis, or does it stand for something else?

THE COMMISSIONER: That is what he said before.

A. Yes.

MR. SHINEHOFT: Q. "Sick sinus, dig. intoxication ?", and then you indicate the plan, which is fairly legible, and that was the completion of that part of the note; is that right?

A. Yes. And "hold digoxin - transfer ICU".

Q. And then the next note, as I understand it, doctor, is the transfer note to the ICU?

A. Correct.

Q. And that note is on page 66.

A. Yes.

Q. Do you have that note in

F14

front of you, doctor?

A. Yes.

Q. Could you start reading it for me, please.

A. I can't see the first part of the date because of the perforation.

Q. I believe it says "12.3.81".

A. And "ICU" - Intensive Care Unit. "23 day old baby who presented to Hamilton with SVT" - standing for superventricular tachycardia. "...and shock. Heart rate 240. Had pH 6.9." This was obviously when he arrived in shock, he had a low pH.

—

2F/DM/ak

Q. That is very acedotic?

A. Very acedotic, yes. Treated with "inotropes" which are things that will raise your blood pressure.

Q. Is that a medical ---

A. It is a term, it is a term for a group of drugs that will increase the, has the final effect of increasing the blood pressure: "plus diogoxin and propranolol and volume with plasma".

Q. What does that mean, Doctor?

A. There is two ways. If the blood pressure is low it can be because the volume inside the vessels are low, like the person has lost a lot of fluid or a lot of blood, or because the heart and the vessels are not controlling the blood pressure properly. So the inotropes were obviously to increase the heart pumping action and increase the tone of the vessels. Whereas the plasma was to increase the volume within the vessels which both have the final result of raising the blood pressure.

Q. Would you go on please?

THE COMMISSIONER: Wait, we will be here all day if you are going to stand there, if you

2F2

are going to ask him all these things. A lot of this you could have asked with a reasonable medical dictionary and many - and you could ask the problems that relate to the cause of death, which is what we are doing. If you are just going to ask him to read everything that is written there we are going to waste an enormous amount of time.

MR. SHINEHOFT: Let me answer that, Mr. Commissioner, by saying that first of all he has written three notes that I would like him to discuss.

THE COMMISSIONER: Yes, but some of it, it can't conceivably be relevant to the issues that we are at. Apparently what you are going to ask him to do is just to read all of these things off and explain what they all mean. I don't know that you have done any work on it yourself, it is discovery.

MR. SHINEHOFT: Mr. Commissioner, one of the problems is I have had difficulty reading Dr. Costigan's writing.

THE COMMISSIONER: It is better than mine and that may not mean much.

MR. SHINEHOFT: I don't intend to belabour the point, Mr. Commissioner.

2F3

THE COMMISSIONER: Well, all right.

MR. SHINEHOFT: If I can just quickly run through ---

THE COMMISSIONER: This is no way to cross-examine, this is perfectly satisfactory if this was an examination for discovery or something like that. You are wasting an enormous amount of time doing it this way.

MR. SHINEHOFT: Mr. Commissioner, with all due respect I have to know what the good Doctor has written down before I can understand.

THE COMMISSIONER: All right.

MR. SHINEHOFT: I don't intend to be here all day. I intend to be as quick as I can. I just want to briefly go through his notes and then I have some other questions.

THE COMMISSIONER: Don't argue with me, Mr. Shinehoft, just go on with it.

MR. SHINEHOFT: Thank you, Mr. Commissioner.

Q. So, Doctor, ---

A. I referred here yesterday ---

THE COMMISSIONER: I wonder if you would just read the whole thing out quickly from beginning to end, and then if you have any questions

2F4

would you make a note of them and ask them at the end, if that is what we have to do we will do it now. Could you read it out quickly from beginning to end and then ask questions about anything that you think is important. I don't want to pause with each line and take about 15 minutes at it. I am quite serious about this.

MR.SHINEHOFT: Yes, Mr. Commissioner.

THE COMMISSIONER: I know it is important to your clients but it is also important to us that you have done an appropriate amount of preparation, that you know where you are going and that you know what kind of questions you are going to ask before you stand up.

MR. SHINEHOFT: Well, I do, Mr. Commissioner.

THE COMMISSIONER: Well, it isn't apparent to me. Well, all right, would you do that, Doctor, please.

THE WITNESS: "Referred here yesterday afternoon p.m. for further evaluation of cardiac status. SE (serum) digoxin prior to transit 1.8.

At about 5:00 a.m. child noticed to have episodic..."

2F5

What I mean by that is episodic decrease in the heart rate:

> "...50-60/min. bradycardia. Responded to stimulation.
> One hour later bradycardia and two to one block noted with prolonged PR.
> Transferred to Intensive Care Unit.
> On leaving the ward developed brady to 40. Cyanosis and brief apnea. Responded to stimulation.
> In ICU: further episodes of brady with three to one block. Lytes show serum potassium of 9.0, slightly hemolyzed.
> A weight repeat.
> On examination afebrile (no fever).
> Dusky on admission with cold peripheries but with with oxygen increased to .70..."

He was obviously down to .40 from the ward:

> "...and increase in heart with improvement. Chest clear clinically and on chest x-ray. Skull normal. Fontanelle normal; eyes normal; cardiovascular system first heart sound, second heart sound..."

Implying normal there:

2FF6

"...soft cystolic murmur. No gallop. No failure."

Gallop is just a thing you find in failure:

"Abdomen: 2 centimetre liver, rest normal. Impression: brady arrhythmia..."

That means an arrhythmia, slowness of the heart:

"Secondary 2 dig. toxicity, assay node disease. Plan hold digoxin. Trial of atropine."

My signature and then an addition of the repeat potassium noted (stat) that means it is to be done immediately:

"7.7 millimol, 10 milliequivalents of sodium bicarbonate given followed by 20 per cent water at maintenace rates - follow with blood sugar in 1Q HR..."

That means every hour:

"...add insulin if required."

That means if the sugar went too high:

"Kaexelate 1 gram per kilogram standard dose, PR..."

That means per rectum by enema: "stat".

Q. This additional note that you made would that have been made contemporaneously

2FF7

with the first note, and would it have been after you had a chance to reflect on what to do as far as treatment of the child was concerned?

A. You mean this whole page 66?

Q. No.

A. You mean the little bit at the end?

Q. Yes.

A. When I got back the result of the potassium.

Q. And that was within the hour?

A. No, the second, the difference in time between the results of getting the first and the result of getting the second was very quick because I phoned them up and asked them for it.

Q. And you were there during all this period of time?

A. Yes.

Q. Doctor, if you could refer to the arrest note on page 67 of the chart:

"12/3/81 at 0845 approximately. Child became apneic."

That means stopped breathing:

"Severe bradycardia followed almost immediately by ventricular fibrillation.

2FF8

"Diagnosis hyperkalemic arrhythmia. 12 cc of sodium bicarbonate given stat followed by 4 ccs 10 per cent calcium glucomate. No response. Defribrillation at 10 joules led to bradycardia - mainly Nodal - 0.1 milligrams of atropine to increase the heart rate.

Little response in rate or output."

That refers to the blood pressure and output:

"5 ccs of sodium bicarbonate plus adrenaline. Some response. Multiple arrhythmias of very short duration throughout the arrest. ICU team and Cardiology Fellow in attendance. Cardiopulmonary resuscitation was effective..."

I mean by that the external cardiac massage was maintaining blood pressure:

"Child remained responsive to pain, et cetera for prolonged time."

Q. What do you mean by responsive to pain?

G/BB/ak

A. It was just an index of how well we were doing the external cardiac massage, that the child was being oxygenated well and his blood pressure was being maintained, so that his brain was being perfused properly and he could still appreciate pain. He was semi-conscious. It is an index of how good we were doing the external - the pumping part really.

Q. Thank you, Doctor.

A. "No medication could settle the rhythm in any one pattern. In and out of ventricular tachy (ventricular tachycardia) and asystole. Basic hyperkalemia treated by giving 0.01 units per kilogram IV stat."

I haven't written in insulin, but that is obviously what is implied there.

Q. Yes.

A. "Increase dextrose solution. And then solution of 1 gram..."

I'm sorry - "...in solution..." - I am having a little difficulty as you can imagine.

THE COMMISSIONER: It looks like 1 gram of dextrose and 6 grams of glucose, isn't that right?

G2

THE WITNESS: Yes, I think it must be 1 gram per kilogram of glucose.

THE COMMISSIONER: Oh.

THE WITNESS: I don't know what the...

THE COMMISSIONER: Well, go on, Doctor.

THE WITNESS: Yes, okay.

"Eventually failure of medical treatments, so, cardiovascular surgeons inserted transthoracic pacemaker. Good capture."

That just means that it was inserted in the correct place and they could see any electrical activity through it.

"...and capture of ventricular mechanics with output."

That means that the electrical activity was producing a pumping and we were getting ---

MR. SHINEHOFT: Q. Right.

A. "...but this only last 30 to 60 seconds before requiring further closed chest massage. Length of independent pumping became less and less in spite of further medications with dopamine and adrenaline. After one hour and 20 minutes with

G3

"failure of chemical and mechanical means of cardiopulmonary resuscitation..." I'm sorry.

"After one hour and 20 minutes with failure of chemical and mechanical means cardiopulmonary resuscitation was discontinued."

Q. And then below that there is another comment that you made, Doctor.

A. "Question - How did potassium get from 3.7 - 7.7 in less than 12 hours without any having been given?" And I have BUN less than 5.

Q. That is an indication I understand of renal function, is that correct?

A. Yes, of normal renal function.

Q. So, the adrenaline glands were working well?

A. The kidneys were working well.

Q. The kidneys were working well. Do you have any idea when you made that arrest note, Doctor?

A. It would be after the arrest, very shortly after the arrest I think.

Q. And do you recall on page 77,

G4

your doctor's orders, do you recall when you made those orders? Would that be after his transfer into ICU?

A. The system in the Intensive Care Unit was that it was a one to one situation with the nurse and the patient and the doctor and what was issued is normally verbal orders and then the nurse records that and then the doctor writes up his orders.

Q. Yes.

A. And when the emergency is over, or whatever, and these orders look like they were all written at the one time. I have ordered the treatment for the high potassium at that point in time. So, they were probably made about 7:30, 8 o'clock.

Q. And that would be in the ICU,

A. Yes, but the orders were verbally given before that.

Q. Right, right. And as well certain other doctors made certain other notes in the chart of this baby. Dr. Fowler on page 70 made a note. Were you present when Dr. Fowler made his note?

A. I can't recall. I remember

G5

Dr. Fowler being present and I remember Dr. Schaffer I think making a note but I can't remember Dr. Fowler making a note.

Q. So, Dr. Fowler was present during the resuscitation, is that correct?

A. Yes. For part of it. I mean, I cannot remember what stage of the arrest he came in.

Q. And Dr. Schaffer was with you as well?

A. Yes. Again, I think - well, when the arrest happened in the Intensive Care Unit the staff in the Intensive Care came to the arrest site and I guess we called the cardiac fellow back, it was Dr. Schaffer, and then there was the cardiac staff person and then the cardiovascular surgeons were called.

Q. To insert the thoracic pace-maker?

A. Yes.

Q. I would like you to describe to me when you drew the sample of blood for the CBC for the electrolytes where exactly you drew that sample from.

A. My recollection is that I

G6

inserted a cannula for the intravenous in,I think it was the right anticubicle faucet, that means the portion here in front of the elbow on the right hand.

Q. Yes.

A. But it could have been the opposite side. I'm not 100 per cent sure.

Q. And that was taken, I believe you said shortly after his admissions to the ICU?

A. Yes, within 15 or 20 minutes I imagine.

Q. And that would have been around 6 o'clock in the morning?

A. I'm getting a bit confused. About that time.

Q. You wrote your first note at 5:30 and then at the end of the note...

A. Correct, yes.

Q. ...agreed to transfer him to the ICU, or you propose to transfer him to the ICU and that would have been about 6 o'clock?

A. Yes. It could have been 6:30 it is difficult to be sure.

Q. Now, you referred to the efforts made to reduce the potassium in the baby and I

G7 believe yesterday you mentioned that you did two things, that you gave him the enema and you gave him the glucose IV.

A. Yes.

Q. Was there not a third thing that you did and, that is, giving him sodium bicarbonate?

A. I think what I really meant in the two things was that one is an acute transient type of treatment and the other is an actual removal - I think I explained this yesterday - of the potassium. The enema will actually remove potassium from the body, whereas, the other measures reduce the amount of potassium in the serum and cause it to go inside to the cells.

Q. That's right.

A. But eventually it would come back out type of thing, it is a temporary measure.

Q. But you did give the baby sodium bicarbonate?

A. Yes, yes.

Q. And that was one of the purposes --

A. Again, a temporary measure.

Q. Now, there was one question I forgot to ask you about, the arrest note. You

G8

completed the arrest note and then you asked the question about the potassium levels, you will recall that?

A. Yes.

Q. When did you make that note in relation to the arrest note because I note that at the bottom of the one note you have signed it and then you insert about two or three lines and then you sign your name again.

A. What page was that, I'm sorry?

Q. It is 67.

A. I cannot be sure now but I think that was sort of probably written at the same time but as speculation, you know, not exactly a factual record but just a question that I didn't answer or couldn't answer.

Q. Would you do this on a fairly regular basis, make some sort of speculation about something?

A. That's a very difficult question.

Q. Okay. Well, accepting that the levels, the digoxin levels are accurate.

A. Which ones?

Q. The antemortem level of greater than 10 and the postmortem level of 26.

G9

A. Yes.

Q. Could that level be explained by a therapeutic dose?

A. I am sorry, I really don't know enough about it. It would be my experience that without either a compromise of kidney function or ability of the child to handle digoxin you wouldn't see that level on a normal therapeutic dose.

Q. And what was your understanding of a normal therapeutic dose?

A. Oh, I don't even know whether I can remember at this stage, it is two years, but at the time I did know and I have it written in my handbook and, you know, what can I say.

Q. Well, it was your opinion that it was considerably above the normal therapeutic dose or do you recall what your thoughts were about the results?

A. My thoughts were that the dose was appropriate, you know, that there was nothing very unusual about the amount of digoxin and that's why we did the electrolytes I mentioned yesterday and the BUN, the seeing was a normal sort of therapeutic dose, its effect being heightened ly either poor kidney function or by a low potassium.

C10

Q. I understand as well, Doctor, you are involved in the study of endocrinology, is that correct?

A. Yes.

Q. Would you consider yourself an endocrinologist?

A. Not yet.

Q. Not yet. Well, I had some questions about endocrinology to ask you but I don't think I will. Thank you very much, Doctor.

A. Thank you.

THE COMMISSIONER: Thank you, Mr. Shinehoft. Mr. Roland?

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G2.1
BMCra

RE-EXAMINATION BY MR. ROLAND:

Q. Dr. Costigan, dealing with the Hines baby you told us about the ventricular fibrillation that you found at the outset of the arrest.

A. Yes.

Q. With Baby Hines. I gather you know it is the opinion of the pathologist, Dr. Becker, that Baby Hines died of a missed-SIDS, it was a missed-SIDS case?

A. Yes, I became of that later.

Q. Do you know whether ventricular fibrillation in that circumstance at the outset of an arrest is consistent or inconsistent with a missed-SIDS?

A. I'm sorry but I'm really not an authority on SIDS.

Q. I see.

A. I know of many different theories as to what are the causes of SIDS and cardiac irregularities is one of them but I am not an expert to be able to digest all of the up-to-date literature and form an opinion as to whether that is a significant frequency of events to see an arrhythmia.

G2.2

Q. So, I take it that although at the time you thought it was something unusual you would really have to, in a missed-SIDS case, you would have to defer to an expert or somebody who is more familiar with SIDS and the missed-SIDS phenemenom?

A. Yes, somebody who would have a complete perspective of the literature.

Q. To determine whether indeed in that context it was unusual, the ventricular fibrillation was unusual?

A. Yes.

Q. I see. All right. Now, you also I think in discussing your relationship with Dr. Carver used the expression 'conflict of interest', that in a conflict of interest situation or in some conflict of interest you would speak to Dr. Carver. Can you explain to us what you meant by that?

A. Oh, a conflict of interest referred to situations that would arise around the house between residents and attending physicians, say, for example, one of the residents considered the care of the baby or of the child, any child in the Hospital, was not appropriate by the attending

G2.3

physician or there was a conflict of interest as regards a conflict of opinion, that would be a better way of putting it, as regards the management of that child and if that couldn't be resolved by my opinion or by a subspecialty opinion certainly I would wander down to Dr. Carver and let him know and he would usually intervene. It didn't happen very often.

Q. I take it that was part of your administrative role as Chief Resident to speak to Dr. Carver in those circumstances?

A. Yes, sort of a go-between.

Q. Yes. All right. Because you used the words 'conflict of interest' in the context I think when you were being asked by Mr. Hunt about your visit to Dr. Carver concerning Baby Pacsai, but I gather there was no conflict of interest?

A. No, it was more --

Q. Surrounding Baby Pacsai.

A. No, I think I was just trying to explain my role in general as how I got into that chain that was described about the command from junior resident right up to staff cardiology.

Q. And you were asked by

G2.4 Mr. Hunt whether following your conversation with Dr. Fowler on Tuesday, March 17th, concerning Baby Pacsai whether Dr. Fowler or any other of the cardiac clinicians had spoken to you after that about Baby Pacsai and you indicated that apart from, I gather the meeting that you had on Saturday evening where Dr. Rowe and Dr. Fowler were present, you had no other conversations with them particularly about Baby Pacsai?

A. I can't remember any formal meetings with them. We were all part of a committee that met every morning in the Hospital during that particular time and the problems were discussed and how things came about and what to do.

Q. Yes.

A. You know, it was sort of a liaiason committee or information committee or whatever and the Cardiology people were present and I was present and Dr. Carver and, you know, various people.

Q. Were particular infants discussed in these meetings?

A. I can't remember to tell you the truth. I can't remember relating my story to that meeting but it is conceivable that I did.

G 2.5

Q. You certainly could have if you wanted to I gather?

A. Yes, I think so.

Q. It was one of the purposes of that meeting that if you had a particular story you wanted to tell --

A. Well, no, I think the purposes of the meeting, they were set up to keep up to --

THE COMMISSIONER: These meetings, did you say they take place every morning?

THE WITNESS: No, just during -- I'm sorry, this was just during when the story about the digoxin unfolded.

MR. ROLAND: Yes.

THE COMMISSIONER: All right.

THE WITNESS: So, like, Monday morning, Tuesday morning, Wednesday morning of that week.

THE COMMISSIONER: That was the following week though.

MR. ROLAND: Q. This is the week following Baby Cook's death?

A. That's correct.

Q. All right.

G26.

A. Beginning I think on the Monday morning.

Q. I gather you didn't attend the morning rounds on a regular basis in the Cardiology Department?

A. No. The work rounds, no.

Q. No. The meeting that occurred in the Cardiology Department on a daily basis about 8:30 in the morning, that wasn't something that you regularly attended?

A. No, no.

Q. But if you had a particular interest or concern about a baby that died on the Cardiology ward and indeed if you attended on an arrest with respect to an infant that died in the Cardiology ward you could have gone to those meetings and expressed your concerns about the events that you had experienced?

A. Yes, I'm sure I could have gone, yes.

Q. Yes. This was something you were free to do if you wanted to?

A. Yes. I knew of no bar to me going to those meetings. I was under the impression that those meetings were mainly involved

G2.7

in reviewing catheterization studies that were done on previous children and plans for catheterization studies that day and subsequent days, you know.

Q. You have indicated that you went to both Dr. Fowler and Dr. Carver with respect to your concerns about Baby Pacsai. I gather you had no problems going to any of the clinicians or to Dr. Carver if you had particular concerns about babies that died during arrests which you were involved in?

A. Well, for anything. I mean, Dr. Carver had an open door as regards seeing me.

Q. Yes. I gather you saw him as needed?

A. Yes.

Q. Yes. And after March 17th when you spoke to Dr. Fowler, or indeed even up to that time, at any time did any Coroner speak to you about Baby Pacsai?

A. No, no.

MR. ROLAND: Thank you. Those are all the questions I have.

THE COMMISSIONER: Mr. Ortved.

G@.8

MR. ORTVED: I think I have just one question because Mr. Roland covered my area of concern.

RE-EXAMINATION BY MR. ORTVED:

Q. I take it that you would be meeting and reporting and speaking with Dr. Carver on, if not a daily basis, several times a week?

A. Yes. My meetings were with Dr. Carver and were usually on an informal sort of basis, depending on the situations that arose. As I had mentioned grand rounds was often an occasion where you would meet him because he was always in attendance and I have often collared him there, type of thing, or met him in various situations like that. He was not difficult to find.

MR. ORTVED: Thank you. Those are my questions.

THE COMMISSIONER: Mr. Lamek, and before you start let me say to everybody that Mr. Lamek talked me into not calling back Dr. Cutz this afternoon. I thought that the chances would be -- I thought that we would be carrying on a little farther. So as soon as he finishes we are finished for the week. Let that prompt you to get it over

G2.9 with before lunch if you can.

MR. LAMEK: Mr. Commissioner, I am not sure now whether I should rush and gain the gratitude of my friends or take it longer so that you can justify a full day here.

MR. ROLAND: We are prepared to vote on that.

REDIRECT EXAMINATION BY MR. LAMEK:

Q. Dr. Costigan, I just heard about this committee and I think it has come as news to all of us with the possible exception of Messrs. Roland and Ortved. This committee that you said met daily in the first part of the week following the death of Justin Cook, can you tell me please who created that committee?

A. I can't be sure. I thought maybe it was -- no, I can't be sure.

—

/DP/ko

MR. ROLAND: I am sorry to interrupt my friend, but I have two concerns about this line of questioning if he is going to get into it. One is that I did not pursue it and, secondly, it seems to me that it is into the second phase. It is part of the second phase, it has been referred to --

THE COMMISSIONER: We have had references to meetings taking place. Apparently they took place all that week. As long as we do not get into anything that took place at the meetings, we are certainly not into the second phase, so I do not think there will be too much complaint about that.

MR. LAMEK: Frankly, I am a little puzzled by my friend. He raised these meetings, apparently an opportunity in which questions from cardiologists could be addressed to Dr. Costigan and he now objects to my enquiring about that.

MR. ROLAND: I was talking about the morning meetings, regular --

MR. LAMEK: That is what I am talking about.

MR. ROLAND: Regular morning meetings held in cardiology.

MR. LAMEK: Q. Did you understand Mr. Roland to be referring you to meetings of a group

of people, of which you were one, which occurred in the mornings in the week following the death of Justin Cook?

A. Yes, he referred to that meeting and I think he referred to another meeting on the ward.

Q. All right. Now, who was present at the meetings to which Mr. Roland referred you?

A. He referred to both meetings.

Q. All right, who was present at those meetings?

A. Which ones?

Q. Let me understand it. Mr. Roland asked you about meetings which you attended in the mornings in, as I understood it, the week following Justin Cook's death. Do I understand that correctly?

A. Yes.

Q. How many such meetings were there?

A. I can't remember. I got the impression there was about three or four.

Q. Three or four. When did they take place?

A. To the best of my recollection it was probably the Monday, Tuesday, Wednesday of that week.

Q. Did they take place in the mornings?

A. Yes.

Q. At what time in the mornings?

A. I am not sure, 8 or 9 o'clock or something like that.

Q. Did anyone other than hospital personnel attend those meetings?

A. I cannot remember.

Q. Let us delete some. Do you recall whether police officers attended those meetings?

A. My recollection is that they were not at the meetings.

Q. Do you recall whether any representative of the Coroner's Office attended those meetings or were they purely internal hospital meetings?

A. My impression was that they were internal hospital meetings and they got reports from various sources of what was happening.

Q. That was the impression that I had, too, when you were answering Mr. Roland. Were the hospital solicitors present at those meetings?

A. I don't know, actually.

Q. And what was the purpose of the

meetings, as you understood it?

MR. BROWN: Mr. Commissioner, I object to that line of questioning.

THE COMMISSIONER: It cannot do any harm, the purpose of the meetings. We are not getting into the facts of the meetings, yet, anyway. What is wrong with the purpose of the meetings?

MR. BROWN: We are beginning to draw very fine lines. One answer is simply going to open up a whole new line of questioning. With respect, even though the police were not present at the meeting, according to Dr. Costigan's evidence, we have distinguished two phases in this Inquiry. This has occurred after the death of Justin Cook, and I think that this is a reasonable point at which to draw the line.

THE COMMISSIONER: We had better hear from you, Mr. Roland, too.

MR. ROLAND: My friend is quite wrong when he says that I referred to these meetings. I was asking this witness not about those meetings at all. I was asking about the Cardiology Division meetings that occurred and continue to occur today and every day at 8:30 in the morning in the Cardiology Department. He misunderstood me and thought I was talking about those others. I did not pursue it. I left that there

and got back to the meetings I was asking about.

THE COMMISSIONER: I thought you got a positive answer and I, like you, thought that these were meetings that he was attending before, as a regular thing, before the weekend of the 20th-21st.

MR. ROLAND: Exactly.

THE COMMISSIONER: Now it develops that he was not at any of those meetings. You did not go to any meetings with the cardiologists before the weekend of the 21st, did you?

THE WITNESS: That is right. They were what is called catheterization rounds or whatever.

THE COMMISSIONER: You did not go to those meetings?

THE WITNESS: No. They usually took place on the wards on the fourth floor.

THE COMMISSIONER: But you were not there?

THE WITNESS: No.

THE COMMISSIONER: The only meetings that you were at with the cardiologists, with any of the cardiologists, started on Monday, the 23rd?

THE WITNESS: That is my recollection of when they started, yes.

THE COMMISSIONER: Now we are now

doing - as I understand it, all that Mr. Lamek is trying to do is to find out for his own information when these meetings took place and what their purpose was. So far he has not asked about - how it could have anything to do with the police investigation in part two, I do not understand, because the police were not there.

MR. BROWN: Mr. Commissioner, with respect, these meetings did not originate until Baby Cook had died and the police investigation had begun.

THE COMMISSIONER: That may well be but I have not - maybe I do have the Terms of Reference here, but it is the police investigation surely we are referring to, not the --

MR. BROWN: Certain circumstances surrounding the investigation and the prosecution of the criminal charges. I would respectfully submit that that would include not only meetings that police attended but meetings internal to the hospital at which the police were perhaps not present but at which time they were perhaps acting upon information given to them by the police and certainly for the purpose of assisting the police. I think the mere fact that the meetings were not attended by the police does not exclude that from Phase 2 of the Inquiry.

MR. LAMEK: Perhaps I can help, Mr. Commissioner.

THE COMMISSIONER: All right. Do you want to wait --

MR. LAMEK: Far be it for me to muddy up the waters and combine the two phases.

My purpose in asking about these meetings is this, and I will ask the direct question:

Q. Dr. Costigan, at any meeting that you attended with cardiologists following the reporting of the levels of digoxin in Kevin Pacsai, do you recall any occasion when any cardiologist asked you about the Kevin Pacsai case, discussed the Kevin Pacsai case with you or in any way evidenced the slightest interest in anything that you had done about the Kevin Pacsai case?

A. I don't recall any meeting with the cardiology people to discuss Kevin Pacsai.

Q. Thank you.

THE COMMISSIONER: Does that solve your problem, Mr. Young?

MR. YOUNG: I have no objection. I was simply going to point out, Mr. Commissioner, and I will be brief, that we spent some time discussing meetings that occurred on Monday and on Tuesday and

the pathologists' actions and reactions as a result of those meetings and I do not see any difference between the meeting that Mr. Lamek was going to talk about, but if he is content, I certainly am.

MR. LAMEK: My purpose was a more restricted one.

THE COMMISSIONER: All right.

MR. LAMEK: Q. Dr. Costigan, you recall yesterday, I think it was Miss Forster, had you look at the two preparations of Lanoxin digoxin, the pediatric one which is the slightly blue coloured one and then the plain one.

A. Yes.

Q. You were also asked about potassium ampules and you said that the ones you recalled was in a 10 millilitre preparation.

A. Yes.

Q. Is that the only size preparation of potassium that you recall seeing around the Hospital for Sick Children?

A. I would imagine there are other types. I can't remember where I've seen other types but I think I have seen other types, yes.

Q. Can you give me some indication, how big is a 10 millilitre ampule?

H 9

A. About that size.

Q. You are holding your fingers what - about 2-1/2 inches apart?

A. Yes.

Q. In relation to either of these digoxin ampules, roughly the same size or substantially bigger?

A. It is a very different shape so it is immediately different because of the shape.

Q. You told us its colourization was different as well?

A. Yes.

Q. Different colour, different shape?

A. Yes.

Q. And a different size?

A. Yes.

Q. I take it that the chances of confusing an ampule of potassium with an ampule of digoxin would be fairly remote?

A. Certainly the 10 ml. ampule with that ampule, yes.

Q. Thank you. In the discussion of confusion of medication, Dr. Costigan, Mr. Olah this morning asked you about the arrest procedures and

the devices and techniques that you have for assuring, or doing the best you can to ensure, that medication errors do not occur.

A. Yes.

Q. And the vial being provided to you with the syringe and so on so that you may check.

A. Yes.

Q. We have heard a good deal about arrest procedures and the picture I confess that we have had, Dr. Costigan, is one of intense activity at the bedside. Is that fair? Things happen pretty fast?

A. Yes, there is urgency.

Q. Urgency of course, and presumably a stressful situation, whatever that may mean. That word has been used to describe the situation. Do you agree with it?

A. I guess, yes. It depends on one's appreciation and one's prior experience, and multiple factors really.

Q. You referred to training of the arrest team in arrest procedures.

A. Yes.

Q. Do I take it that no matter how hurried and perhaps frenzied the appearance may seem to be it is not chaotic and it is not indisciplined?

A. That is correct. It should not be chaotic or undisciplined.

Q. Indeed I take it the very urgency of the situation makes it the more important to have procedures and routines and training to avoid errors taking place in such a context?

A. Absolutely, yes.

Q. Was that the kind of training to which you were referring when you said you had been exposed to arrest procedures and training in them?

A. My training involved having attended arrests that were conducted by my predecessors during my prior year in the hospital, and most residents were encouraged and still are encouraged to attend. That is why there is often a large crowd to attend, even just for observation purposes, and that was part of my experience. Formal training, we all had formal training in the basic techniques of cardio-pulmonary resuscitation, external cardiac massage. We had training by the anaethesist staff on the proper management of an airway, how to ventilate a child, I mentioned this briefly yesterday, using this bag apparatus, and to ensure that the airway was patent while you were bagging.

Q. Yes.

H 12

A. We had training by the Intensive Care Unit people, the staff people in Intensive Care, Dr. Edmonds in particular, comes to mind.

About the medication, the indications for various medications, when to use what, when to change, when to use cardioversion, how to use it.

Q. Yes.

A. All that, it is quite involved.

Q. I take it, therefore, that although the room in which resuscitation effort is occurring may be full with people watching what is going on --

A. Yes.

Q. And anxious to help if they can, those directly involved in the operation know what they are about; they are trained in what they are about, and the appearance of chaos does not reflect the reality of chaos. Is that fair?

A. Yes, there is really a very limited number of people who actually touch the child. The usual situation is that there is a nurse doing the external cardiac massage. The anaethesist arrives and takes over the management of the airway. The surgical resident who is quite an expert in getting intravenous has arrived and his job - and has a nurse assisting him, is to find a good intravenous line so medications can be given.

H-2
DP/cr

The role of myself or the associate resident is to make sure that everybody is doing what they are meant to be doing, to read the strips from the cardiac monitor, to diagnose the phase, to give medication, to judge the response, to give more medications, to carry on that way.

Really, even though there are other people around, their actual involvement should be minimal, really.

Q. Dr. Costigan, let me just touch on one additional area. The meeting on the evening on the 21st of March, the meeting with Dr. Carver and Dr. Fowler, which led to your going off with Dr. Mounstephen to inventory the digoxin and pass on the word about locking it up ---

A. Yes.

Q. Was there a discussion at that meeting of the mode of administration that may have been adopted by a person administering the doses of digoxin which were a concern to you? You have told us that the possibility was raised and discussed at that meeting of intentional overdose. That was one thing that had to be faced.

A. My recollection of that meeting was that yes, we did, as we discussed intentional

2-2 we of course discussed how.

Q. And was there any consensus on that question?

A. My recollection on that, it was a long time ago, I did not make notes at the time, was that intravenous was considered to be the probable method because of, I guess, the difficulty with oral preparations and concealing it and having to give such a large amount.

Q. And I know you have told us this morning that the reason for not recording on your inventory the amount of oral digoxin was because there was just so much of it.

A. My intention initially was to do that and then I discovered I had the problem of how do you quantitate what is in the bottles, so I did not inventory that.

Q. But in light of the discussion of which you have now told me on the consensus, as best you can recall it, a likely route of administration would have been intraveneously, I take it was more important to ~~recall~~ record the parenteral preparations that were on the wards?

A. Yes.

MR. LAMEK: Dr. Costigan, you have

been very helpful. Thank you very much.

THE COMMISSIONER: Thank you indeed, Doctor.

THE WITNESS: Thank you very much.

MR. LAMEK: Oh, one other thing, quickly, before Dr. Costigan goes I do now have his CV and it can become a matter of record.

THE COMMISSIONER: All right.

MR. LAMEK: It is a CV complete until I believe the summer of 1983. It does not disclose your present occupation and status. It is to the summer of 1983.

THE COMMISSIONER: Thank you, Doctor. It is Exhibit 206.

---EXHIBIT NO. 206: Curriculum Vitae of Daniel Colm Costigan.

THE COMMISSIONER: Does anyone have anything else, because we will rise then until 10 o'clock -- yes?

MR. BROWN: If I could simply make one enquiry of an administrative nature. Was a decision made about summaries of the transcripts, Mr. Commissioner.

THE COMMISSIONER: Yes. Where is Miss Cronk. She has disappeared. She was negotiating -

2-4

here you are, yes. Has the man been hired?

MS. CRONK: The arrangements at present are that Mr. Kelly has been retained for that purpose. The timing of the turnaround and how long it will take to do the backlog - there are some 25 transcripts that have not been touched, obviously since the first day of the cross-examination of Dr. Rowe, has yet to be determined, and as soon as I have that information I will advise all counsel.

THE COMMISSIONER: All right. Anything else?

MR. SHANAHAN: Mr. Commissioner, I have an interest in Dr. Cutz and I am just trying to figure out the timing as I have another commitment Tuesday morning. Can anyone recollect where we were?

THE COMMISSIONER: Mr. Scott was not yet finished and he or someone is going to finish.

MR. ROLAND: Presently it appears to be Mr. Scott, and I am informed he will be about an hour.

MR. SHANAHAN: I will be here for the afternoon session.

MS. SYMES: Mr. Commissioner, with respect to the preparation of the summary might I ask, in preparing this summary, that it would be

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most useful to us if we were to receive the summaries of the current evidence as a first priority, specifically as we have attempted to summarize what has gone on before, and would be very grateful to receive those at that time, but it would be most useful in saving time and energy if the person could begin to summarize the current evidence.

THE COMMISSIONER: Yes. He apparently lives in Scarborough and there is some problem with getting it out to him, I think.

MS. CRONK: Mr. Commissioner, that is a problem that obviously we are aware of. We have had discussions but I do not think that a final determination on that has been made. There is a difficulty in doing it. As soon as I have the details, I will inform counsel but I simply do not have them all at this time.

THE COMMISSIONER: I think there might be something, though, in what Miss Symes says, that it might be more useful to have the summary of the current ones, but I do not think it is going to be possible, this is not going to be in time for cross-examination or anything like that.

MS. SYMES: Oh, no, I fully appreciate that, but it keeps current the summarizing process.

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THE COMMISSIONER: Yes, all right.

Anything else?

Until Tuesday at 10:00 a.m.

---Whereupon the hearing adjourned at one o'clock until Tuesday, October 11th, 1983, at 10:00 a.m.